

# Delivering a Comfortable, Yet Carbon Neutral Lifestyle



Actively promoting the reduction of CO<sub>2</sub> emissions in both the construction and occupancy of our buildings

Japan is the fifth largest producer of CO<sub>2</sub> emissions globally, with about 20 % of its emissions originating from residential homes. As a homebuilder, Sekisui House believes the reduction of home-related CO<sub>2</sub> emissions represents a key in the fight against global warming. As such, we are firmly committed to various environmental initiatives set out in each of our core business segments—detached housing, leased residences and remodeling.

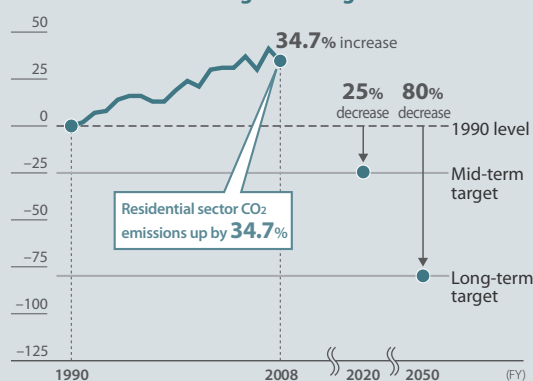
## Social Issues Reducing Home-Related CO<sub>2</sub> Emissions Key in Global Warming Fight

The prime minister of Japan's address at the 2009 United Nations Summit on Climate Change restated Japan's commitment to reduce greenhouse gas emissions, including CO<sub>2</sub>, by 25% of 1990 levels by the year 2020. As of 2008, however, compared to the positive progress made by the industrial sector, Japan's residential home sector has conversely seen an increase\* in CO<sub>2</sub> emissions by 34.7 % over 1990 levels.

As Japan is a major industrial country where secondary industry accounts for nearly one-third of GDP, the country is limited by its ability to restrict industrial sector CO<sub>2</sub> emissions. Consequently, Japan is faced with the challenge of greatly reducing CO<sub>2</sub> emissions from other sectors to ensure adequate emission quotas for the industrial sector. Reducing CO<sub>2</sub> emissions from heating and cooling, water heaters, lighting and home electronics represents one viable solution.

\* Quick estimation from the Ministry of the Environment of Japan report 2008 Greenhouse Gas Emissions

**Residential sector CO<sub>2</sub> emissions and Japan's 2020 mid-term and 2050 long-term targets**



Source: Graph created based on sector-specific data released by the Greenhouse Gas Inventory Office of Japan

## Sekisui House initiatives

### Pursuing eco-friendly designs in new

#### New Detached Homes → P19

#### Promoting sales of Green First homes

Built using highly functional insulation that clears next generation energy saving standards and featuring high-efficiency water heaters systems as well as PV system or the *ENE FARM* fuel cell system, Green First homes first went on sale in March 2009. Sekisui House plans to rapidly expand sales of these comfortable, economical and eco-friendly homes going forward.



#### (1) Standard for all new build homes



Insulation and draft-proofing compliant with next-generation energy saving standards



High-efficiency water heaters

#### (2) Green First features



PV system

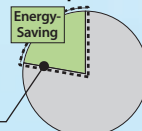
OR



*ENE FARM* fuel cell system

#### All new build homes post 2005

Occupancy-related CO<sub>2</sub> emissions  
**20%\* reduction**



**Energy-Saving**: CO<sub>2</sub> reduction from energy saving measures

**Energy-Generation**: CO<sub>2</sub> reduction from energy generation measures

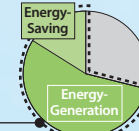
\* Subject for comparison is ordinary residential detached house (wooden house built during the 1980s to former energy saving insulation standards)

#### Annual heating and lighting expense simulation

- A 155m<sup>2</sup> detached house in Tokyo occupied by a family of four, with air-conditioning and heating loads calculated using SMASH thermal load software.
- Kerosene heaters and other heating appliances were assumed for as heating source for ordinary residential detached houses, while heat-pump air conditioners and water-heated, in-floor heating (50m<sup>2</sup>) were assumed for other houses.

#### Green First homes

Occupancy-related CO<sub>2</sub> emissions  
**60~80%\* reduction**







Our Green First eco-friendly housing product was awarded an Eco Products Award by the Eco Products Awards Steering Committee.

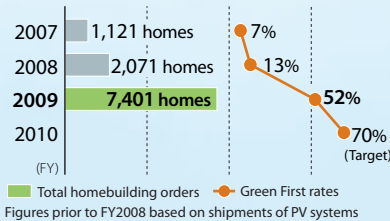


Our proprietary roof tile PV system was awarded a Good Design Award 2009 by the Japan Industrial Design Promotion Organization.

## builds, leases and remodeling



### Green First new build detached house orders and ratio



### (3) Green First Premium features



PV system

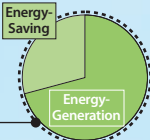
AND



ENE FARM fuel cell system

### Green First Premium

Occupancy-related CO<sub>2</sub> emissions  
**100%\* reduction**



Energy-generation using photovoltaic power generation



Energy-generation measures using fuel cell system

Next-generation energy saving standards

### New Low-rise Apartments → P22

#### Commercializing PV-powered Sha-Maison Green First residences

Sales of Sha-Maison Green First apartments began in March 2009. Units feature an all-electric design powered partially by a PV system, providing the highest level of satisfaction to property owners and tenants alike.



### Sha-Maison Green First features

#### Recommended features



PV system



All-electric design

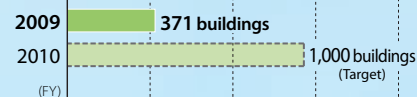


Insulation and draft proofing compliant with next generation energy saving standards



High-efficiency water heaters

### Sha-Maison Green First construction orders



### Remodeling → P23

#### Promoting eco-friendly remodeling designs

Beginning with existing build detached house and apartments, Sekisui House is actively engaged in promoting remodeling designs that incorporate energy saving and energy generation solutions, such as updating window and door insulation, installing PV systems, or upgrading to high efficiency water heaters.



### Recommended Improvements



Window and door insulation

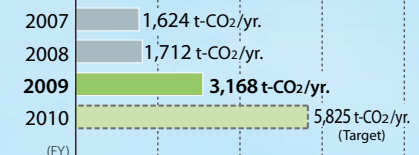


PV system



High-efficiency water heaters

### CO<sub>2</sub> reductions by eco-friendly remodeling



IS ORDER J  
Green First Premium design



# Raising Demand for Green First New Build Detached Houses

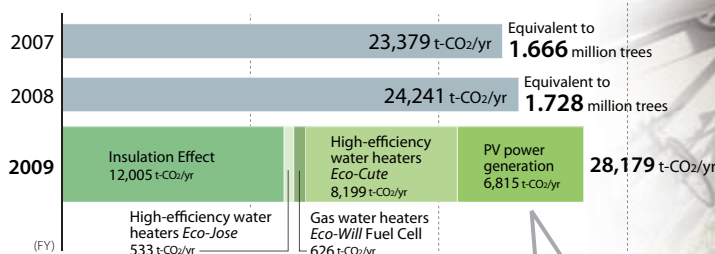
## Broadening Sales of Green First Homes

The Sekisui House Green First homes, first available to homebuyers in March 2009, has received strong marks for its comfortable living spaces as well as economical and eco-friendly design.

Green First homes feature either the PV or the *ENE FARM* fuel cell system, which cut household CO<sub>2</sub> emissions by 60 to 80 % compared to ordinary detached house\* built during the 1980s. Our flagship Green First *Premium* homes, which features both the PV and *ENE FARM* fuel cell system, can cut CO<sub>2</sub> emissions by up to 100 %, effectively making the home carbon neutral.

\* Ordinary detached house refers to a 2-story wooden house built in the greater Tokyo metropolitan area during the 1980s to former energy saving insulation standards with a total floor area of 155 m<sup>2</sup> and occupied by a family of four. Average annual CO<sub>2</sub> emissions from such homes generally total 4,100kg.

### CO<sub>2</sub> reductions in new build detached houses



CO<sub>2</sub> emissions effectively reduced equivalent to the amount absorbed by **2.008** million trees

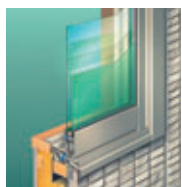


## Green First eco-friendly features

### Next-generation energy saving designs

Sekisui House has adopted a standardized approach to its energy saving and energy generation designs that exceeds the high levels set by the government of Japan for next generation energy saving standards in detached houses.

Furthermore, Sekisui House detached houses mitigate cold and provide a highly comfortable living environment with minimal dew condensation by using multi-layered



glass that features airtight insulation and crime prevention qualities and make it nearly 3-times harder to transfer heat than conventional single glass window panes and an airtight insulated aluminum sash secured by resin molded insulation.

### High-efficiency water heaters

Sekisui House uses *Eco-Jose*, a high-efficiency gas water heaters, that increases efficiency by 15% compared to conventional units, and *Eco-Will*, a high-efficiency gas water heaters, in homes that use both gas and electricity, while *Eco-Cute*, water heaters nearly 3-times



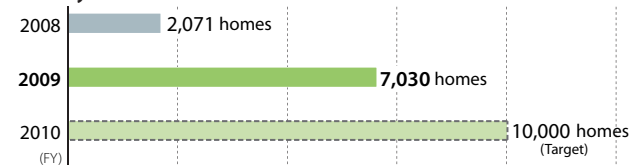
as efficient as conventional electric water heaters, is used in all-electric homes. These high efficiency water heaters greatly contribute to reducing a home's CO<sub>2</sub> emissions.

### Recommendation of PV systems



The use of electricity produced from clean PV energy can greatly cut CO<sub>2</sub> emissions. Energy can also be produced independently off grid during times of emergencies or natural disasters. Additionally, the Sekisui House proprietary roof tile PV system that mimics the shape and design of clay roof tiles provides a clean appearance and naturally integrates into the design of the home and surrounding community.

### PV system orders



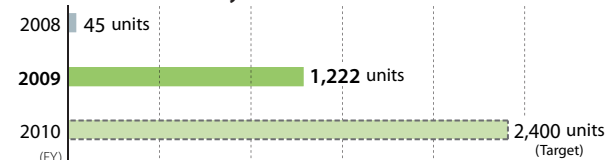
\* FY2008 data based on shipments

### ENE FARM fuel cell systems

The *ENE FARM* fuel cell is a highly efficient gas powered water heaters that minimizes energy loss by reacting hydrogen extracted from natural gas with oxygen in the surrounding air to generate electricity. The system also uses residual heat from the reaction to heat water simultaneously. The *ENE FARM* system and PV system come standard on all Green First Premium homes.



### ENE FARM fuel cell system orders



\* FY2008 data based on shipments



### Green First Premium homebuyer review

Mr. and Mrs. **Kawamoto**  
(Saitama Prefecture)

**Gas and electricity bills cut by two-thirds**  
**More conscious of cutting back on energy use**



Mr. Kawamoto, who recently became interested in PV power generation for the home, says, "my interest was also sparked in household fuel cell systems, which became a topic at the G8 Hokkaido Toyako Summit." After discovering Sekisui House was one of the first in the industry to offer PV and fuel cell systems, he jumped at the chance to have these systems installed in his new Sekisui House-built home.

Although Mr. and Mrs. Kawamoto say they are "used to the cold" since they hail from northern Japan, both are "not open to the idea of a cold interior." The solution was a gas water heated in-floor heating system for their living room, children's room and master bedroom. In addition, the house features window and door insulation and walls that meet next generation energy saving standards as well as an increased amount of insulation in the attic. The result is a house warm in the winter, yet at less than one third the cost.

Mrs. Kawamoto also explains she is now more conscious of cutting back on energy use because she can see firsthand the amount of power consumed and produced daily. She turns off lights when not in use and has also become more aware of her home's environmental impact in other areas, including garbage disposal and water use.

Sekisui House is proud that the Green First Premium home provides homeowners with a superior sense of comfort without sacrificing in terms of economics or the environment, as well as leads to a greater awareness of the environment by the homeowner.

### Homebuyer in-home monitoring study

#### CO<sub>2</sub> Balance Monitor study

Shortly before fuel cell systems became available in February 2009, Sekisui House was one of the first in the industry to begin a monitoring study as part of the 2008 Model Project for Reducing CO<sub>2</sub> in Residential Buildings. The study comprised of customers from 30 locations nationwide who participated as monitors to assist in measuring generated electricity and the conversion efficiency from CO<sub>2</sub> Balance Monitors installed in homes with PV and ENE FARM systems.

Data obtained from the study is being used to study best practices for making homes even more energy efficient and comfortable going forward.



CO<sub>2</sub> Balance Monitor features intuitive, easy-to-understand depictions of CO<sub>2</sub> emissions (black smoke) and power produced.

### Sustainability in Action

**Emphasizing a homeowner's contribution to CO<sub>2</sub> reductions through owning a new build house**

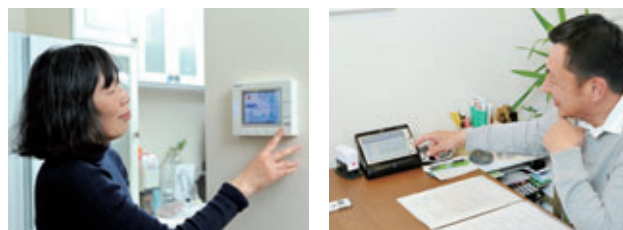
#### Akira Takaoka

Biena Ageo Model House Showroom,  
Saitama Branch



As Mr. and Mrs. Kawamoto were looking for a superior cold-proofing solution for their new home, we provided upgraded insulation on top of standard insulation. They also requested Sekisui House to pick out suitable home furnishings and accessories that fit their new home, so we had our interior coordinator design the ideal interior living space to make Mr. and Mrs. Kawamotos' vision a reality.

Going forward, I want to help make the home-building process as care free as possible to ensure our customers are satisfied with selecting Sekisui House as their builder of choice. I also believe it is important to properly convey our corporate stance toward environmental protection and new environmentally friendly home building concepts to homebuyers. Nothing would make me happier than having our customers understand and experience firsthand how they can make a difference in reducing CO<sub>2</sub> emissions through owning a new-build home.



In-home monitor that displays changes in power generation and consumption using easy-to-understand illustrations. Mr. and Mrs. Kawamoto found the monitor "much more fun to view than number-only monitors."



## Raising Demand for Green First New Build Detached Houses

### LED Home Lighting Solutions

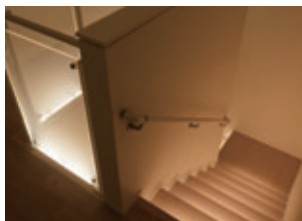
Sekisui House has selected LED as the lighting solution of choice for its Green First homes for its energy efficiency and long life. Employing LED lighting throughout the interior of the home can help cut annual CO<sub>2</sub> emissions by almost 78% compared to conventional fluorescent and incandescent lighting fixtures.\* Moreover, with its compact design and easily manipulated high intensity light source, LED greatly expands the realm of lighting design possibilities.

In December 2009, Sekisui House opened a model home next to its Kanto factory lit exclusively with LED fixtures called the *Kurashi no Akari-kan*. In advance of moves to phase out incandescent lighting, Sekisui House plans to utilize this model home as a platform for promoting the use of in-home LED lighting solutions.

\* Calculated based on a detached house in Tokyo occupied by a family of four with a 155m<sup>2</sup> floor area.



Kurashi no Akari-kan



Establishing LED as a viable primary lighting solution



Sekisui House is also striving to increase the prevalence of other energy-saving solutions, such as high-efficiency air conditioning units and other energy efficient home appliances.

### PV and Fuel Cell Systems

Sekisui House encourages the installation of PV systems and the *ENE FARM* fuel cell system in Green First homes.

The *ENE FARM* system went on sale in May 2009, with first year sales of 1,222 units greatly exceeding the fiscal year target of 1,000 units, as Sekisui House accounted for nearly 40% of all *ENE FARM* domestic sales—the highest any homebuilder in Japan. In addition, the number of detached houses under order for PV system installation accelerated to outpace the initial sales target of 6,000 homes to reach 7,030 as a result of both national and local government subsidies and a Sekisui House rebate program launched in May 2009 providing 130,000 yen per 1 kilowatt of installed PV.

### Looking Ahead: Other Sekisui House Environmental Targets

With the recent launch in Japan of an electricity buy back program in November 2009 and the eco point system for housing in March 2010, Sekisui House has set the following three targets for fiscal 2010.

- Install PV systems in 10,000 homes
- Increase the ratio of Green First homes to total new build homes to 70%
- Install 2,400 *ENE FARM* fuel cell systems

Going forward Sekisui House will study the viability of smart homes, which optimize the energy supply-demand balance by integrating household energy, and smart grids, which optimize this balance in regional units, with the ultimate goal to transform homes into net suppliers of clean energy.



#### Dr. Takao Kashiwagi

Professor, PhD, Integrated Research Institute (IRI), Tokyo Institute of Technology  
Dr. Kashiwagi specializes in environmental and energy system engineering, refrigeration and cooling systems and applied thermal engineering. He is a principal member of various government-led energy committees and councils.

#### External stakeholder's perspective

### Energy Generating Homes and Smart Cities

#### Large paradigm shift to occur in energy and housing leading up to 2020

Soon roof PV systems will become standard on new build detached houses, which will also feature fuel cell technology in place of conventional water heaters. In homes, a smart monitor with information and communication functions will allow users the ability to maximize control of natural energy use as well as link with mobile devices. The number of plug-in hybrid and electric vehicles will increase; followed by smart houses where homeowners can charge their vehicle using either surplus power from the fuel cell system or clean energy from the PV system. While at the time of peak energy use, electricity will be supplied to the house from the vehicle's rechargeable battery. With the spread of smart houses, residential neighborhoods will become suppliers of clean energy to downtown core business districts, marking the arrival of integrated energy network systems.

These smart cities, however, are unattainable without the building block of energy generating homes. I believe this is where Sekisui House has the opportunity to play an integral role going forward.

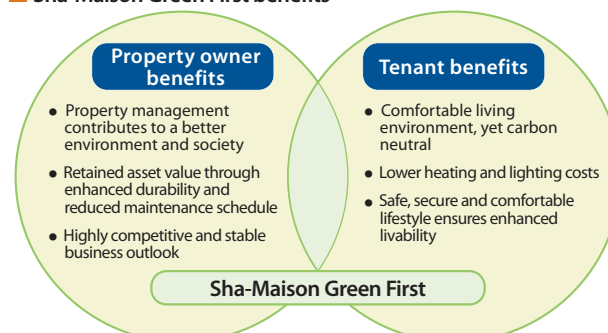
# Cutting CO<sub>2</sub> Emissions with Sha-Maison Green First Low-Rise Apartments

## Multi-Family Housing Balancing Economics with the Environment

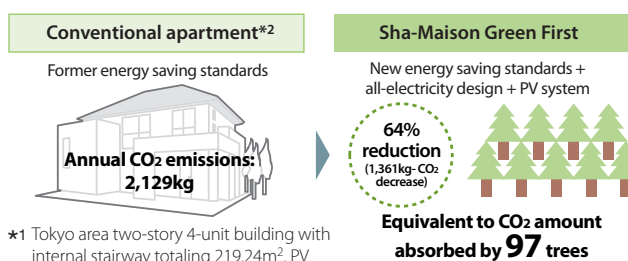
Although they account for over 40 % of annual housing starts in Japan, rentals have yet to see a substantial increase in on-site PV solutions. Sekisui House was the first in the industry to offer a product that combines an all-electricity powered design with an inexpensive energy rate plan and on-site PV system when it launched sales of its Sha-Maison Green First low-rise apartments in March 2009.

Sha-Maison Green First residences feature industry-leading environmental designs and greatly reduce heating and lighting costs for tenants through the sale of surplus electricity. Property owners also benefit from decreased maintenance requirements, retained asset values, and reduced initial investment courtesy of national or local government subsidies. As a result, Sha-Maison Green First low-rise apartments have commanded great attention from owner and tenant alike, as 371 buildings were sold in fiscal 2009.

### Sha-Maison Green First benefits



### Sha-Maison simulated CO<sub>2</sub> reduction \*1



\*1 Tokyo area two-story 4-unit building with internal stairway totaling 219.24m<sup>2</sup>. PV generation totals 2.29kw/unit (south facing converted).

\*2 Two-story apartment building built in the 1980s to former energy saving standards.

### Sustainability in Action

Comfort, economics and environmental design are the new keys to attracting tenants

**Yasuhiro Takeda**  
Hyogo Sha-Maison Branch



When I first started selling Sha-Maison Green First residences, most property owners could not recognize the need for or benefit of PV systems in rental housing. These same property owners soon came around, however, after a presentation marketing the benefits of differentiation from existing properties and emphasizing the future competitiveness and profitability of the Sha-Maison Green First product.

Recently, the key to lease property management has been how to attract new tenants. With a large supply of existing properties available, property owners cannot expect to retain asset value simply because the property is a new build. Both comfortable and economical, Sha-Maison Green First residences will attract tenants without doubt. Going forward, I look forward to actively marketing Sha-Maison Green First and increasing the prevalence of eco-friendly apartments on the market.

### Sha-Maison Green First example images



Two-story low-rise "Village"



Three to four story "Bereo"



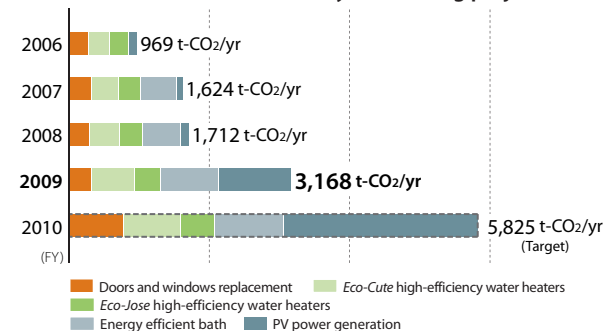
# Eco-friendly remodeling

## Cutting CO<sub>2</sub> emissions in existing detached houses

Group company Sekisui House Remodeling Co., Ltd. has completed remodeling projects for nearly 700,000 detached houses built by Sekisui House that have improved the environmental design, economics, and comfort to a point that they are comparable to a new build home. Sekisui House Remodeling has also established individual targets for upgrading window and door insulation, PV system installation and high-efficiency water heaters upgrades. Buoyed by accelerating demand for PV systems, we were able to reduce our homes' annual CO<sub>2</sub> footprint by 3,168 tons in fiscal 2009, or 7.5 times the amount from fiscal 2005.

Eco-friendly remodeling projects are also covered in the government of Japan-led Home Eco Point Program, which was started in March 2010. Viewing this as a key opportunity, Sekisui House Remodeling will launch the double eco points program that will match the number of government-issued points, up to a maximum of 150,000 points, for all remodeling projects commenced by December 31, 2010. In addition, Sekisui House Remodeling aims to reduce CO<sub>2</sub> emissions by 5,825 tons annually in fiscal 2010.

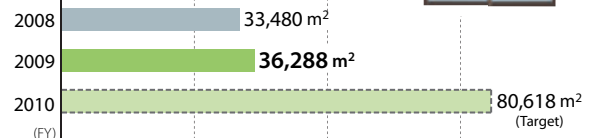
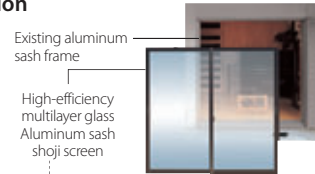
### CO<sub>2</sub> reduction from eco-friendly remodeling projects



## Eco-friendly remodeling solutions

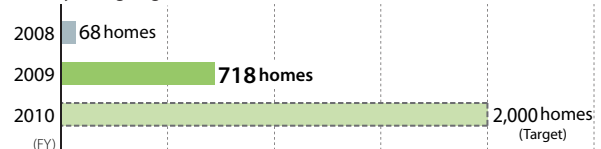
### Window and door insulation

In fiscal 2009, Sekisui House completed remodeling projects that replaced and upgraded window and door insulation on 3,601 homes and replaced a total window area of 36,288 m<sup>2</sup> with the latest multilayer glass panes.



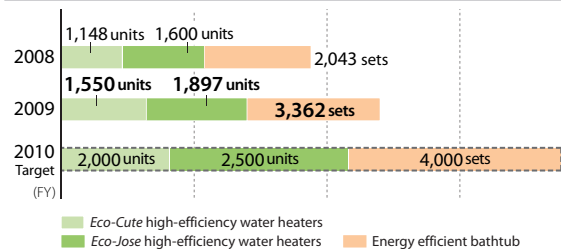
### PV systems

After completing the installation of PV systems in a total of 718 homes in fiscal 2009, Sekisui House will further focus on marketing its proprietary roof tile PV system going forward.



### High-efficiency water heaters and energy efficient baths

Sekisui House marketing initiatives, which combined high-efficiency water heaters upgrades with a 3-piece energy efficient bath set, resulted in the installation of 1,550 Eco-Cute units, 1,897 Eco-Jose units, and sales of 3,362 bath sets in fiscal 2009.



Pursuing energy efficiency in our business activities

Refer also to Environmental Targets & Track Record on page 53.

## Our Commitment to the Challenge 25 Campaign

### Reducing Production-Related CO<sub>2</sub> Emissions

Sekisui House initiatives in fiscal 2009 to reuse heat waste from dry kilns and boilers, introduce high-efficiency water heaters change over to inverters, streamline lighting and reduce shipment volumes helped the Company greatly reduce its production-related CO<sub>2</sub> emissions footprint.

Further, a decrease in production efficiency resulted in 10.03 kg of CO<sub>2</sub> emission per square meter of floor area shipment.

We have set a goal to reduce our CO<sub>2</sub> footprint by further 25% in fiscal 2010, and are actively making efforts to attain this goal, such as further increasing use of inverters and shifting to more environmentally-friendly fuels.

### Pursuing Energy Efficient Offices

With the Revised Law Concerning Rational Use of Energy requiring reporting of energy use for all businesses, Sekisui House has embarked on a company-wide review to strengthen its internal framework for reducing CO<sub>2</sub> emissions.

Starting in April 2009, the Sekisui House Osaka head office improved the operating efficiency of its cooling systems, reducing CO<sub>2</sub> emissions by 120 tons annually. We will continue this effort in fiscal 2010 and beyond, as part of our broader company-wide commitment to conserve energy.

## Sustainability in Action

### Marketing economically superior PV solutions

#### Toshiya Fujimoto

Director, Kumamoto Remodeling Center  
Kyushu South Sales Office  
Sekisui House Remodeling Ltd.



When talking to customers considering a PV system, I make it a point to ensure they fully understand PV benefits by taking them through national government and Sekisui House subsidy programs and explaining the surplus electricity buyback program where electric power companies buy back surplus energy at twice the normal price. In addition, I always provide customers with a tailored proposal and cost-benefit analysis based on manufacturer and Sekisui House calculations.

Previous customers have told me how happy they are with actually getting paid each month for their surplus energy and how they enjoy checking the in-home energy monitor. Everyone is impressed they can reduce their energy use while also being paid for it. Recently, I also installed a PV system in my home, which has allowed me to expound the benefits of PV systems with a more personal touch.

Going forward, I hope to become more active in promoting eco-friendly remodeling solutions by marketing packaged solutions based on the age of a customer's home that include all-electricity designs, window and door insulation replacement and high-efficiency water heaters upgrades.

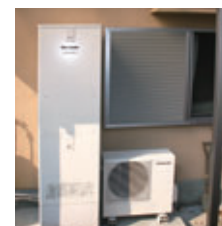
## Group-wide remodeling business

The Sekisui House Group nationwide family of 31 Sekiwa Construction companies began offering remodeling solutions for non-Sekisui House detached houses and new builds starting in April 2009. Remodeling projects have focused on eco-friendly solutions, as we seek to reduce CO<sub>2</sub> emissions in non-Sekisui House detached houses by replacing window and door insulation, upgrading to high-efficiency water heaters or installing PV systems.

Sekisui House Group condominium management company SGM Operation Co., Ltd. provides remodeling services for condominiums on Rokko Island in Kobe where the Company played a key role in the area's urban development plans. SGM Operation also encourages replacing door and window insulation at remodeling-related seminars as a means to reducing a homeowner's CO<sub>2</sub> footprint.



Remodeled non-Sekisui House detached house



Installing an Eco-Cute unit



#### Junko Edahiro

Founder and President, e's Inc.

Ms. Edahiro is working to change people's perspective toward the environment through public speaking, writing, translating, and consulting. She was a committee member for the roundtable on global warming issues under the Fukuda and Asao administrations.

## External stakeholder's perspective

### Increasing the Number of Eco-Friendly Homes

Housing, in which we spend most of our life, is vital to a number of issues, including the environment, energy security, and human happiness. In aiming to achieve the challenging goal of a comfortable house with minimal (zero more ideal) environmental impact, I believe Sekisui House is changing the potential of global warming measures into reality by employing new break-through technologies based on sound development and verification practices.

I encourage Sekisui House to move forward in developing a standardized model for homes that greatly reduces environmental impacts subtly and at the same time improves people's awareness of the connection their lifestyle has with the environment.



## Educational activities in energy conservation

### Energy Conservation Seminar

Sekisui House actively conducts seminars around Japan targeting parents and children that address the relationship between global warming prevention and people's lifestyle through games and interactive experiments. Seminars focus on comparing different home insulation as well as energy efficient appliances to encourage participants to lead a more eco-friendly lifestyle.

In fiscal 2009, 19 classes were held with 332 children learning about energy conservation, while a further 20 seminars were held that promoted energy efficient lifestyles.



Many parents-children energy conservation seminar





# Conserving Forests and Biodiversity through Our Homebuilding Practices



Eco-First Commitment:  
Encourage the revitalization  
of ecosystem networks

Sekisui House places great emphasis on biodiversity conservation through its landscaping initiatives and wood procurement practices. We understand our responsibility to conserve biodiversity, as a homebuilder that uses large quantities of wood materials and considering the unparalleled size of our landscaping projects in Japan. There is a groundswell of interest in biodiversity today, fueled by Japan's hosting of the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 10) in 2010. Sekisui House will continue to take a leadership role in contributing to biodiversity conservation through our business activities.

## Social Issues

### Continuing Loss of Biodiversity

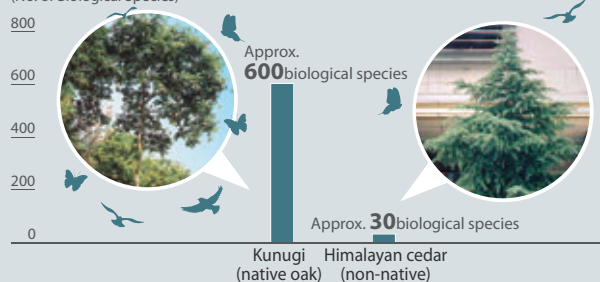
Biodiversity is an indication of an abundant and balanced ecosystem with diverse biological species and DNA. However, human activity is causing the loss of biodiversity, and today 12% of all bird species and 21% of all mammal species are under the threat of extinction.\*

Biodiversity is being threatened in a number of ways, such as due to excessive logging in tropical rainforests that have rich ecosystems, and the import of non-native species that contribute to the destruction of native ecosystems. Further loss of biodiversity has the potential to threaten mankind's existence on our planet, as we are dependent on ecosystems for various needs such as food, clothing and shelter.

In Japan, we are witnessing a rapid loss of sustainable *Satoyama* landscapes that bring nature closer to us. *Satoyama* landscapes have long enabled sustainable human interaction with nature, giving rise to rich ecosystems. In today's world, there is a pressing need to revitalize our immediate surroundings in a way that will create rich natural ecosystems.

\*Based on 2009 data from International Union for Conservation of Nature (IUCN).

#### Wood Species and Biodiversity (No. of Biological Species)



There are marked differences in the number of biological species that are attracted to trees, here comparing kunugi native oak that are typically found in Japan's *Satoyama* landscapes, and the non-native Himalayan cedar. The difference explains why *Satoyama* landscapes feature rich ecosystems.

## Sekisui House Initiatives

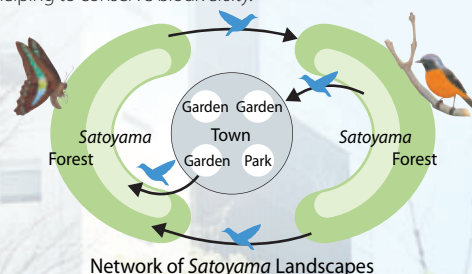
### United with Our Group Companies,

#### Community-Building Initiatives through

##### The *Gohon no ki* landscaping concept → P27

#### Planting Native Species in Yards and Landscaping to Form Ecosystem Networks

Sekisui House uses the *Gohon no ki* landscaping concept in a wide range of community development projects from detached houses to apartments and condominium developments. We work with specialists from NGOs to select and plant native tree species that are best suited to regional climates, choosing trees that will attract many biological species. We plant these native tree species in yards and landscapes to form part of the larger ecosystem that also encompasses remaining *Satoyama* landscapes and forests, in effect forming a network of *Satoyama* landscapes. By helping to revitalize natural environments that are indigenous to the area, we are helping to conserve biodiversity.



Vegetable patch and rice paddy in Shin-Satoyama grounds



Corporations must endeavor to minimize the impact of their business operations on biodiversity and also help to revitalize biodiversity. Sekisui House has prepared its own Wood Procurement Guidelines to encourage supply chains that have a lower impact on biodiversity. This initiative is influencing suppliers to enhance their own efforts to conserve biodiversity, and reducing the impact of the housing industry as a whole.

Under the *Gohon no ki* landscaping concept, Sekisui House is working with customers to conserve local biodiversity, with the aim of revitalizing nature and ecosystem networks in a way that is similar to the traditional *Satoyama* landscaping approach. Sekisui House launched an ongoing biodiversity survey in 2008, targeting subdivisions where it has implemented the *Gohon no ki* landscaping approach. These surveys have shown concrete benefits from using the *Gohon no ki* landscaping concept, and reveal an increase in bird populations as trees and vegetation planted by Sekisui House grow and become fuller over time.

I hope Sekisui House will work to involve an even larger circle of stakeholders, while continuing to display leadership through the initiatives that fundamentally address biodiversity conservation through its business activities.



**Dr. Naoki Adachi**

CEO, Response Ability, Inc.

Response Ability assists corporations in their sustainability initiatives by providing consulting services for biodiversity conservation and CSR procurement. Dr. Adachi serves on a committee organized by the Ministry of Environment to examine guidelines for corporations to take action on biodiversity conservation.

## Suppliers and Society to Conserve Ecosystems and Biodiversity

### Residential Development

#### FairWood Procurement ➔ P30

#### Procuring Eco-Friendly Wood from Fair Sources

Sekisui House established its own Wood Procurement Guidelines in April 2007, based on discussions with environmental NGOs, to encourage the use of sustainable wood. The guidelines address issues such as illegal logging, biodiversity conservation, and the concerns of communities in logging areas. Sekisui House has enlisted the cooperation of many of its suppliers to implement FairWood\* procurement, based on studies of tree species and logging areas.

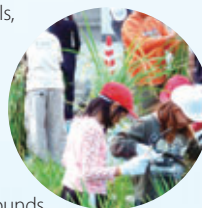
\*FairWood is a program implemented by the Global Environmental Forum and the international environmental NGO FoE Japan. FairWood refers to wood and wood products sourced in a manner that takes into account the conditions of the forest environment and/or the local communities where logging takes place.



### Collaboration and Raising Awareness

#### Internal and External Education Activities

Sekisui House communicates the importance of biodiversity conservation through various initiatives including the distribution of nature education materials, implementation of extension workshops for elementary school students, and hands-on education at the *Shin-Satoyama* grounds.



#### Government and Inter-Industry Collaboration

Conservation of biodiversity requires a united effort rather than working in isolation. Sekisui House is involved in a number of international and Japan-based conservation initiatives, in partnership with governments and other companies.



### COP 9 and 10

There is growing recognition today of the need for biodiversity conservation as a global-scale issue. At the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 9), the parties were united in their opinion that private companies will play a large role in biodiversity protection. As the host nation to COP 9, Germany spearheaded the creation of a Business and Biodiversity Initiative, which Sekisui House has pledged its support for by signing a Leadership Declaration.

Sekisui House is also involved as a trustee member of the Japan Business Initiative for Conservation and Sustainable Use of Biodiversity (JBIB), which was formed in April 2008 by forward-thinking corporations in Japan. JBIB carries out joint research from an international perspective, and engages in dialogue with stakeholders.



**The Shin-Satoyama grounds attract many wild birds including this shrike**



**A dragonfly emerging from its skin (Shin-Satoyama grounds)**

The *Shin-Satoyama* grounds are located in Shin Umeda City, adjacent to the head offices of Sekisui House, and spread across 0.8 hectares of green space. The grounds are mainly planted with native and local trees and vegetation, providing a home for a diverse variety of living creatures amid an urban environment. The grounds are designed to grow to become a blueprint of how nature can coexist in an urban environment.

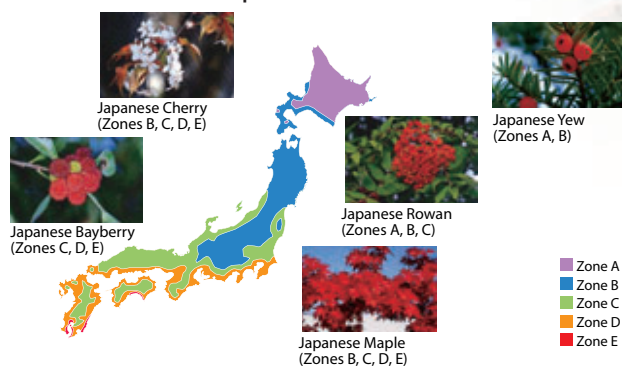


# The *Gohon no ki* Landscaping Concept—Revitalizing Our Relationship with Biological Species

## Creating a Network for Planting Native and Local Tree Species

Sekisui Housing developed the *Gohon no ki* landscaping concept by drawing inspiration from sustainable Satoyama landscapes that have long been part of Japan's landscape. Under the *Gohon no ki* landscaping concept, we plant native and local tree species in yards and landscapes, guided by local geography and climate zones and through careful selection of tree species best suited to each climate. Indigenous trees attract many living creatures including wild birds and butterflies, which help to conserve ecosystems while at the same time creating a residential environment for homeowners to enjoy.

### Native and Local Tree Species Selected for Each Area and Climate



### Trees Planted by Sekisui House



#### Supplier's Perspective

### Growing and Supplying Native Species to Enhance Residential Environments

**Hironari Kobayashi**  
President and Representative Director  
Kobayashiyoujyuen Co., Ltd.  
Tree grower supplying local and native tree species

Kobayashiyoujyuen supports the *Gohon no ki* landscaping concept by Sekisui House and its contribution to nature conservation, in our capacity as a tree grower and gardening contractor.

Japan features a varied geography and a diverse range of native species in each region. We try to capitalize on the characteristics of each region to reproduce a *Satoyama*-like environment for residential yards and landscapes. We are using gardening techniques to link together ecosystems that are in turn connected to communities.

We recognize the importance of increasing greenery as Sekisui House advocates, and will do our part to supply trees and gardening services that will help to create enhanced living environments.



Sekisui House has built a network that encompasses approximately 80 landscaping companies and tree growers across Japan. Our partners share our vision of sustainable landscaping and assist by growing trees to be planted in yards and landscaping under the *Gohon no ki* landscaping concept.

## Biodiversity Survey Tracks Benefits of the *Gohon no ki* Landscaping Concept

Sekisui House in partnership with Eco-Planning Research Co., Ltd. initiated an ongoing biodiversity survey in September 2008, in order to track the benefits of the *Gohon no ki* landscaping concept. We study biodiversity before and after construction of residential developments that employ the *Gohon no ki* landscaping concept. The survey measures the benefits over time and in comparison with nearby environments. The surveys are conducted every summer and winter in six subdivisions, covering five areas ranging from Sendai in the north to Miyazaki in the south.

The preliminary data we have collected indicates that there has been an increase in both the quantity and variety of biological species in some subdivisions, both over time and in comparison with nearby environments. Sekisui House enlists the help of homeowners to collect data for the surveys, which makes homeowners feel more connected with the nature around them and raises awareness of the importance of biodiversity conservation.



#### Biodiversity Survey Participants

**Iwamoto Family**  
(Ibaraki Prefecture)

### Rediscovering Our Backyard



We first chose to take part in the biodiversity survey because of my son's interest in living creatures. He always impresses me with his keen eye for observation, and his backyard discoveries have included a praying mantis, stag beetle, and cabbage butterfly. He has also observed birds such as white wagtails, sparrows, and turtledoves visit our yard on occasion.

We have been helping with the survey since last summer, and look forward to the release of detailed information from the experts. It also gave us an opportunity to get to know our neighbors better and has sparked our interest in our yard and garden, as we even started planting vegetables. We are looking forward to putting more work into our garden and enjoying our home even more.

#### Sustainability in Action

### Ongoing Biodiversity Survey Popular with Participants

**Junichi Aizawa**  
Tsukuba Branch



The Iwamoto Family live in a subdivision that encompasses a large six hectare park and landscaping that employs the *Gohon no ki* landscaping concept. The goal of the development was to create an unparalleled residential community where residents can feel they co-exist with the surrounding ecosystem.

We initiated the biodiversity survey at this subdivision in September 2009, since the objectives were a good match for the concept. Eleven pairs of local residents braved the poor weather to help us collect data for the inaugural survey, focusing mainly on observing birdlife.

We received a lot of positive feedback from the participants, many of whom expressed an interest in joining similar events. We are also considering plans to build a stream and small pond in the community, to help attract various living creatures to the area.



**Takao Ogawara**  
President & Representative Director  
Eco-Planning Research Co., Ltd.

Eco-Planning Research provides consulting for fieldwork to study natural ecosystems, and for nature parks. The company also trains instructors for environmental education.

#### External Stakeholder's Perspective

### Sekisui House's Biodiversity Survey

Research is being pursued today around the world to determine the role of common gardens and greenery on biodiversity conservation in urban areas. To examine the exact benefits of using the *Gohon no ki* landscaping concept in landscaping and residential development, Sekisui House started an ongoing biodiversity survey focusing on six subdivisions. The first step in conducting the surveys is to study the degree of biodiversity in nearby areas, and then assess biodiversity in the subdivisions.

Sekisui House recruits homeowners to help conduct field observations for the survey. The homeowners have observed wild birds such as the varied tit, Japanese white eye, and brown-eared bulbul, and insects such as the swallowtail butterfly. In the second-year, the survey has found an increase in bird and insect populations, and greater numbers of varied tits and turtledoves.

We will soon have two full years of data to analyze since initiating the surveys in 2008. The data will enable us to track the benefits of the *Gohon no ki* landscaping concept, both over time and in comparison with similar urban areas. The surveys are helping to spur homeowners' interests in biodiversity that exists in their own backyards, while contributing to residential development that benefits humans and biodiversity.

### Green Expert Program

Sekisui House runs an internal Green Expert program that trains employees in advanced gardening and planting techniques, and teaches them about biodiversity conservation. Since it was launched in 2005, 45 employees have completed the program.

Those completing the program provide technical support across the country, lead in-house training seminars, and direct the work of our gardening contractors. The Green Experts have earned the respect of customers and their colleagues for their valuable expertise.



Green Experts in training

### Looking Ahead: Expanding Ecosystem Networks through Residential Development

Sekisui House is in its tenth year of implementing the *Gohon no ki* landscaping concept. We are endeavoring to provide homeowners with appealing yards and landscapes that incorporate the *Gohon no ki* landscaping concept, in order to encourage the widespread use of sustainable landscaping.

Sekisui House has set a goal of planting one million trees annually in Japan, but declining housing starts have prevented us from attaining this target. Nevertheless, we will press on in our effort to plant more trees.

We will also continue to collect data and track the benefits of the *Gohon no ki* landscaping concept, through biodiversity surveys that we launched in 2008 which involve ongoing field study and observation, and through online surveys.





Raising Awareness for Biodiversity Conservation

## Teaching Children about the Importance of Biodiversity Conservation

In addition to incorporating biodiversity conservation practices through its business activities, Sekisui House is actively involved in raising awareness about the importance of biodiversity conservation.

We have designed an environmental education curriculum with downloadable materials, that are available free of charge for educators to use in the classroom. We also conduct workshops for teachers and extension workshops at elementary schools, to teach students about the importance of ecosystems through the study of nature in their school grounds and immediate surroundings.

Sekisui House provides a *Gohon no ki* mobile phone website with a search feature for trees and wild birds. In October 2009, we launched a new website to educate the public about the importance of biodiversity and spotlight our biodiversity initiatives.

### Sustainability in Action

#### Teaching Children about the Environment

**Aya Kotani**

Osaka North Office, Osaka Center  
Greentechno Sekiwa Kansai Ltd.



I visited an elementary school in Sakai City to give workshops using the *Letters from Dr. Forest* environmental curriculum developed by Sekisui House. During the fieldwork, the kids try to find different species of leaves around their school grounds, shouting out when they find what they are looking for. It is surprising how well the children can remember the characteristics of different flowering plants.

Children learn about the relationship between plants and living creatures during their everyday play. It is a good reminder of the many ways that we can learn about the environment in our everyday lives.

#### TKids Have the Most Surprising Questions

**Kenji Miki**

Osaka Planning & Design Office,  
Planning & Design Department



As an instructor for the *Letters from Dr. Forest* program, I lead extension workshops for elementary school students and for teachers and the general public. I am always impressed by how much the participants are interested in nature, across all ages.

The children always have the most surprising questions, which are sometimes difficult to answer, such as "Why are there so many trees in the forest?" and "Why do acorns have a cap?" It is always fun to teach the children and witness their inquisitiveness.



*Letters from Dr. Forest* is a hands-on environmental education curriculum designed by Sekisui House



Sekisui House Biodiversity Microsite  
(<http://www.sekisuihouse.co.jp/biodiversity/>)



*Letters from Dr. Forest* was designed for classroom use. Sekisui House also conducts extension workshops at schools.

## Involving Employees and their Families in Biodiversity Conservation

An organization called the Shin Umeda City *Satoyama* Club organizes various activities out of the *Shin-Satoyama* grounds, including vegetable gardening and nature observation sessions. Involved in the club are people working in Shin-Umeda City and their families, including many Sekisui House employees.

In fiscal 2009, the club organized a field observation session for singing insects led by an insect expert, one of many educational activities conducted for biodiversity.



An insect expert teaches the participants how to distinguish between various insect sounds, as they learn about the ecology of insects.



# FairWood Procurement Encouraging Sustainable Forestry Practices

## Working with Suppliers and NGOs to Implement FairWood Procurement

Every year, thirteen million hectares of land are deforested around the world, for various reasons ranging from illegal logging and overdevelopment to the inappropriate use of “slash-and-burn” practices and man-made forest fires. Deforestation is destroying natural ecosystems and affecting people’s lives.

Sekisui House engages in FairWood procurement to encourage the sustainable use of wood. We unveiled the Wood Procurement Guidelines in April 2007, which outline ten principles that we use to score wood procurement, by assigning one of four ratings (S, A, B and C). We work with suppliers and NGOs to reduce the procurement of C-rated woods, in favor of more sustainable S-rated woods.

### Wood Procurement Guidelines: Ten Principles

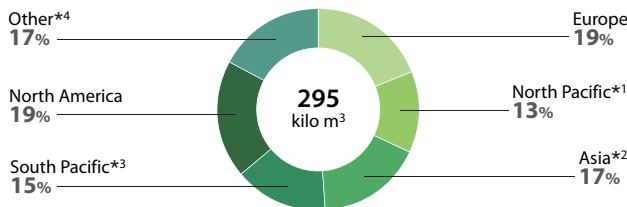
1. Wood products that are sourced from areas where there is low risk of illegal logging.
2. Wood products that are sourced from areas that do not form part of ecosystems recognized as having outstanding value.
3. Wood products that are not sourced from ecosystems that are severely damaged or areas where large-scale logging of natural forests has occurred.
4. Wood products that are not sourced from endangered species.
5. Wood products that are sourced from areas close to where they will be used.
6. Wood products that are not sourced from areas subject to conflict or hostility with regard to wood production.
7. Wood products that are not sourced from areas where the amount of logging does not exceed the recovery rate of the forest.
8. Wood products that are sourced from domestic forests in Japan.
9. Wood products that are sourced from plantation forests that are managed according to methods that encourage the preservation and generation of a natural ecosystem.
10. Wood products that are made from previously used wood.

### Procurement Levels: Determining procurement rankings

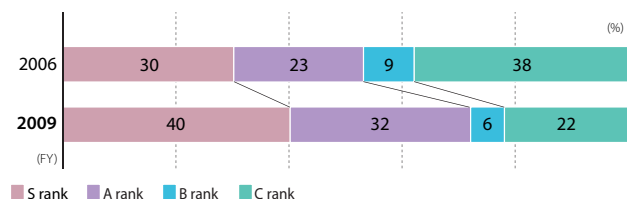
Total Points (maximum of 43 points)	Procurement Ranking	Using total procurement guideline points, products are classified as S, A, B, or C level, with S being the highest, while a separate borderline is established for guidelines 1 and 4, which are particularly important.
34 or more	I	
26 or higher but less than 34	A	
17 or higher but less than 26	B	
Less than 17	C	

### Wood Procurement Data

#### Logging area composition



#### Proportion of Procurement Ranking



\*1 North Pacific: RussiaR \*2 Asia: including Japanese products  
 \*3 South Pacific: Indonesia, Malaysia, etc.  
 \*4 Other: South America, Africa, wood waste materials

## Wood Flooring Sourced from Responsibly Managed Forests

Until recently, approximately 70% of the wood flooring used by Sekisui House had low procurement levels. To improve the situation, Sekisui House worked closely with flooring suppliers to switch to sustainable species and woods sourced from sustainable areas, and certified wood products. The move enabled our suppliers to gain valuable expertise in the manufacturing and installation of sustainable wood flooring, through the process of establishing new supply chains and switching to sustainable wood species. In fiscal 2009, our suppliers were able to provide certified wood flooring products right from the start, which helped us to improve the quality of our sustainable procurement practices.



Certified flooring product



## FairWood Procurement Encouraging Sustainable Forestry Practices

### Promoting Akita Cedar to Revitalize Forestry and Conserve Mountain Ecosystems

Japan today only sources about 20% of its wood from domestic sources, whereas this percentage was as high as 90% in 1960. Meanwhile, forests planted four of five decades ago have not been maintained adequately, which has led to the deterioration of ecosystems in Japan's mountain areas. Our Wood Procurement Guidelines emphasize the sourcing of domestic woods to revitalize the Japanese forestry industry and conserve ecosystems in mountain forests.

In some parts of the Tohoku region, Sekisui House has been offering homeowners the option of using laminated wood posts made from Japanese Akita cedar in their wood-framed homes. In fiscal 2009, we expanded this option to offer it for all wood-framed homes constructed in the Tohoku region. We are also switching to plywood made from Japanese woods, for use as a construction underlayment.

In fiscal 2009, Sekisui House's procurement of Japanese wood materials amounted to 44,000 cubic meters, or 15%, of total procurement for that year.

There are various challenges associated with sourcing Japanese wood products, such as the relative young age of the wood compared with imported wood products, which affects dimensional stability, and the difficulty of securing adequate volumes of domestic wood. Yet Sekisui House is committed to overcoming these challenges and increasing the use of Japanese wood products as part of our FairWood procurement strategy going forward.



Laminated wood posts made from domestically sourced Akita cedar



### Awards for FairWood Procurement

#### Sekisui House Receives Award for Excellence at the Japan Awards for Biodiversity

In September 2009, Sekisui House was recognized at the first Japan Awards for Biodiversity by the AEON Environmental Foundation and Ministry of the Environment. We received the award in recognition of our Wood Procurement Guidelines in the category of product usage. The award is given to organizations and companies who make outstanding contributions by developing a product involving the sustainable use of biodiversity, or by implementing a product or service that contributes to such use.



### Educating Employees About FairWood Procurement

Sekisui House provides employees with information about the purpose of green procurement and the status of initiatives in order to advance FairWood procurement. The Company trains employees connected with the SHAWOOD line of wood-framed detached houses, so that they can effectively communicate the benefits of these houses to customers.

Under the program, employees observe testing procedures for structural integrity and learn about new development plans. The scope of the program was expanded in fiscal 2009 to brief employees about FairWood procurement and its policies and future direction. These initiatives are raising the awareness of employees toward FairWood procurement, and preparing them to better communicate the benefits of FairWood procurement to our customers.



Sekisui House employees learning about structural integrity testing

### Looking Ahead: Enhancing the Level of FairWood Procurement

In fiscal 2009, Sekisui House continued taking steps to raise its FairWood standards for wood procurement, which earned us several awards. We will continue to explore ways to enhance our FairWood procurement, in order to meet the expectations of stakeholders outside the company.

One of the challenges we face is to raise the perceived added value of FairWood procurement and improve public recognition. We will continue raising awareness about issues in forestry and the importance of FairWood procurement, in order to gain widespread support and recognition for this important initiative going forward.

#### Sekisui House Receives Green Purchasing Award

Sekisui House received the Award for Excellence at the Green Purchasing Awards in October 2009 for achievement in the area of wood procurement initiatives, from the Green Purchasing Network which organizes the awards. The award was given in recognition of Sekisui House's achievements in working with suppliers and NGOs to implement FairWood procurement of eco-friendly wood from fair sources.

The organizers cited Sekisui House for several achievements including for the superior execution of green purchasing for wood products, and the level of objectivity of our green purchasing guidelines implemented in partnership with environmental NGOs. Sekisui House was also praised for collaborating with suppliers to advance green purchasing efforts, and engaging in public education through the publication of a children's book that stresses the need for FairWood procurement.

It is the second consecutive year for Sekisui House to win the Award for Excellence at the Green Purchasing Awards, after receiving a 2009 award for our Carbon Neutral House.



## Satoyama Tours Educate Customers About the Importance of Using Domestic Wood

Using domestic wood is actually important from the perspective of protecting Japan's mountain forests from inadequate management. We have adopted the Long-term Quality Housing Leading Model Project instituted by the Japanese government. The program is designed to encourage greater demand for quality and durable housing with longer life cycles by ensuring proper maintenance and repair practices.

Under the program, Sekisui House has developed a plan to enhance homeowners' attachment to their homes. The plan incorporates the use of building materials made from domestic broadleaf trees, as part of our overall strategy to encourage the use of domestic wood.

Sekisui House also organized two *Satoyama* tours in Saitama and Shiga that enabled customers to experience Japan's mountain forests up close in order to raise awareness about the importance of using domestic wood and encourage customers to choose building materials made from domestic broadleaf trees.



Sekisui House receiving the Green Purchasing Award

## Sekisui House Distributes Educational Material in Support of FoE Japan

Sekisui House has prepared a children's book titled *Kurara no Mori*, that is designed to communicate the importance of FairWood procurement. We distribute the book through our display homes and at environmental events to raise awareness about FairWood procurement.

FoE Japan\* is an international environmental NGO that engages in the community fundraising project *Mori no Present* (presents from forests), which is a program for the maintenance of forest in Japan. The thinning lumber removed during forest upkeep is then used to make wooden benches that are donated to kindergartens and elementary schools.

Sekisui House is a proud supporter of this initiative. In support of the program, we donated copies of *Kurara no Mori* to schoolchildren in conjunction with the donation of wood benches by FoE Japan to six kindergarten and elementary schools.

\* Calculated based on a detached house in Tokyo occupied by a family of four with a 155m<sup>2</sup> floor area.



Reading *Kurara no Mori* to schoolchildren

### Facilitator's Perspective

## Long-Term Perspective Needed for FairWood Procurement

In just three years, Sekisui House has gained solid support for its FairWood procurement initiative, encouraging Japan's major building materials manufacturers to conform with the Wood Procurement Guidelines developed by Sekisui House. It is certainly a pioneering initiative in Japan.

At the same time, serious progress is being made to encourage sustainable wood procurement in other parts of the world. For example, in Europe, only imports of certified or legally authenticated forest products are allowed, while in the United States, trade in illegally logged wood products is subject to strict government penalties. As demand for wood products rises in developing countries and deforestation continues, it will become increasingly difficult to source wood products from outside of Japan. Three suppliers who participated in the roundtable discussion have set procurement targets for 2011, but in the medium- and long-range view, corporations need to take a serious look at adopting a distributed model for procurement and manufacturing of wood, that involves using local wood products in the area where they are harvested.

At the roundtable discussion on FairWood procurement, one of the suppliers raised the valid point that a certain amount of expenditures are required to properly manage our domestic forests and procure wood products from these forests. Sekisui House must work to educate everyone from its customers to its own planning, design, sales and interior design staff about the importance of FairWood procurement, in order to implement the initiative on an even broader scale.



**Kenichi Nakazawa**

Director, FoE Japan  
Forest Program  
International Environmental NGO

FoE Japan tackles problems such as global warming, deforestation, and development aid to developing countries from a global level. Kenichi Nakazawa served as a facilitator for the roundtable discussion.