

Contributing to the emergence of a decarbonized society in 2050

Enhancing energy efficiency × Utilizing renewable energy

**CO<sub>2</sub> = 0**



Main ESG Themes

# Decarbonized Society



Basic concept

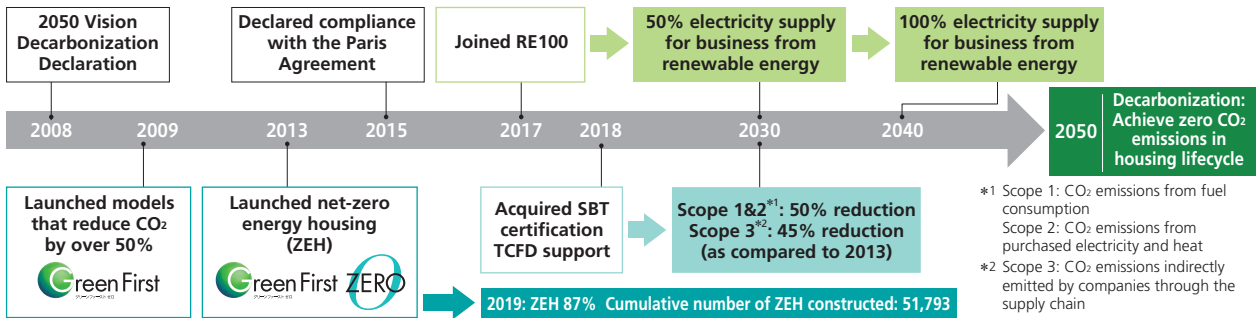
We encourage the adoption of ZEH and ZEB\* to reduce CO<sub>2</sub> emissions in the dwelling and usage phases of houses and buildings; these phases account for the largest proportion of CO<sub>2</sub> emissions in the entire industry. At the same time, we are working to reduce CO<sub>2</sub> emissions throughout the value chain, which includes promoting energy efficiency and the use of renewable energy sources in our business operations. Our goal, as reflected in the IPCC Special Report, is to contribute to the emergence of a decarbonized society by 2050.

\* Net-zero energy houses and net-zero energy buildings aim to achieve an annual balance of primary energy of plus or minus zero while providing a comfortable indoor environment by generating power and focusing on energy efficiency.

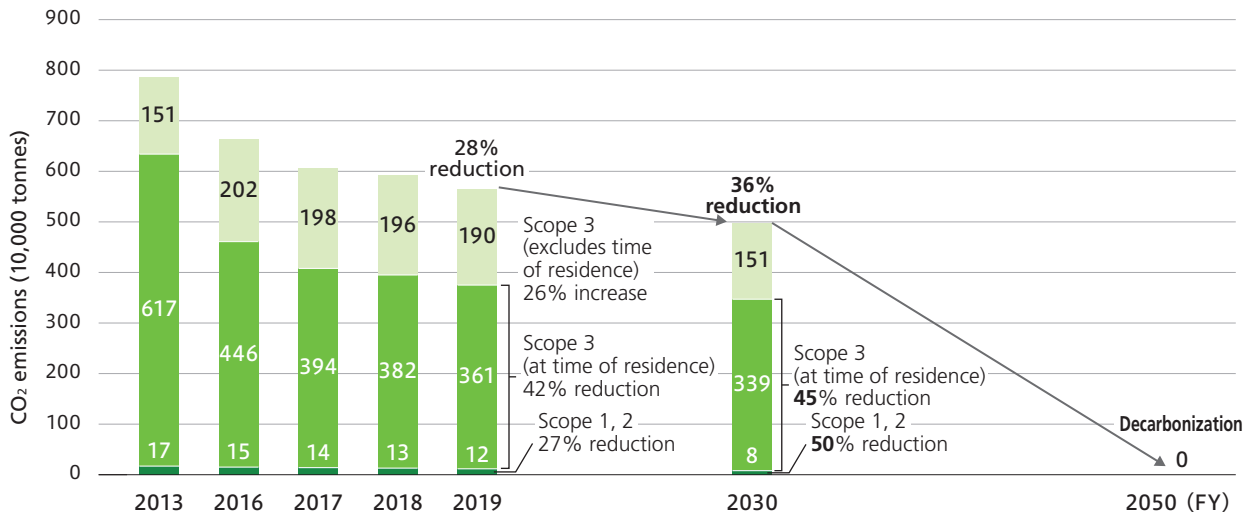
Approach

We were quick to introduce ZEH Green First ZERO products for new detached houses placed on the market. We are leading the ZEH transition in the housing industry by constructing Japan's first ZEH rental units and condominiums. We also launched Sekisui House Owner Denki, which aims to achieve RE100\*<sup>1</sup> by purchasing surplus electricity from post-FIT\*<sup>2</sup> homeowners. Having obtained SBT certification\*<sup>3</sup>, we are implementing decarbonization efforts.

\*<sup>1</sup> An initiative to obtain sufficient renewable energy to offset all the electricity consumed by a business  
 \*<sup>2</sup> A reference to the expiration of 10-year (or 20-year) contracts for purchase of renewable power by an electric power company under a feed-in tariff (FIT) framework  
 \*<sup>3</sup> Certification of greenhouse gas reduction plans based on scientific data



Sekisui House value chain CO<sub>2</sub> emission reduction plan and progress (All reduction rates are relative to FY2013 levels)



Ratio of new detached houses classified as Green First ZERO ▶ **90% by 2022**

## Activity report

87% of our new detached houses are ZEH, for a cumulative total of 51,793 units.

Our Green First ZERO (ZEH) homes demonstrate a high level of comfort, economy, and environment-friendly design. In FY2019, 87% of our detached houses were ZEH. As a result, we reached our FY2020 target of 80%\*1 ahead of schedule. This result is far higher than the ZEH ratio of 13%\*2 achieved in Japan in FY2018. Since we launched this initiative in 2013, we have attained a cumulative total of 51,793 ZEH units (as of March 31, 2020), which represents the highest total in the industry in Japan.

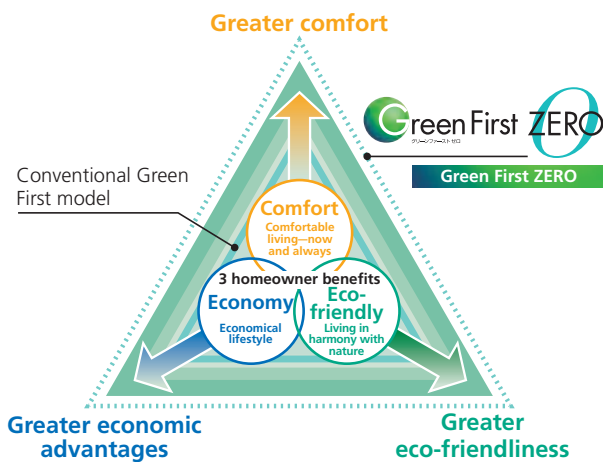
We have implemented various initiatives to promote the benefits of ZEH, including tours and regular seminars at exhibition halls and at our *Sumai-no-Yume-Kojo* Centers. By developing the necessary technologies, we have provided solutions in cases where barriers to ZEH conversion exist. For example, ZEH standards require the installation of high-capacity solar panels, but securing the required capacity with general large-format panels is difficult on roofs with complicated shapes due to the circumstances of the site or the building design.

For this reason, we have developed a proprietary tile-shaped solar panel that allows for the installation of many panels on a roof with a complicated shape. In addition, the panels are inconspicuously integrated with the existing roof tiles, so the exterior appearance of the building and the surroundings are considered in the installation. In addition, in three- and four-story residences, which are increasing in popularity mainly in urban areas, columns are used to provide direct support for the roof. Moreover, because solar panels are required for ZEH conversions, we have developed large roofs that provide the necessary support regardless of the building configuration.

By solving such difficult challenges with technology and by highlighting the various benefits of ZEH design to our customers, we are continuing to promote adoption of the ZEH standards through our Green First ZERO initiative with the goal of reaching a ZEH ratio of 90%.

\*1 ZEH diffusion target required for ZEH builder registration at the Sustainable open Innovation Initiative (SII). Registrants were required to set a target of at least 50% by 2020; we adopted a target of 80%.

\*2 Result published at the Net-Zero Energy House Support Project Survey Presentation 2019



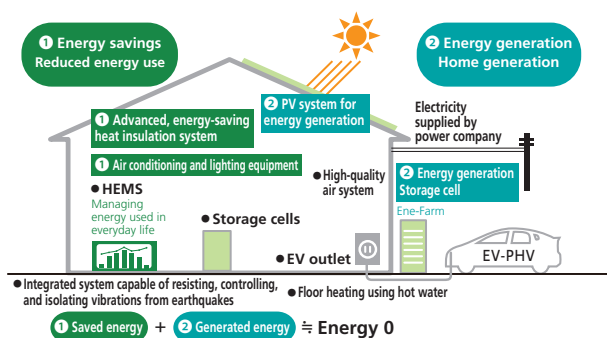
Green First ZERO homes provide a high level of comfort, economy, and environment-friendly design.



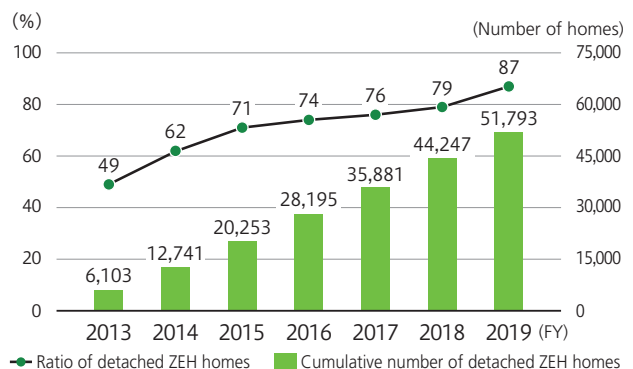
Both the open balcony space and the installation of high-capacity solar panels are made possible with columns that support the large roof on the second floor.

## Green First ZERO model

We aim to build zero energy houses by improving insulation and installing energy-saving equipment, in addition to using photovoltaic systems and other advanced energy-generating equipment.



## Growth in the number of Green First ZERO (ZEH) homes



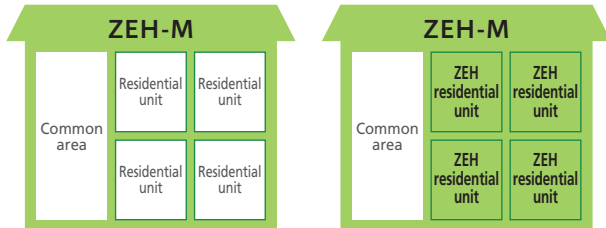
# Decarbonized Society

## Our Sha Maison ZEH rental housing offers 447 units in 58 buildings.

About 30% of the CO<sub>2</sub> emissions attributable to the residential sector are emitted from multi-unit housing complexes, and rental housing accounts for a large portion of this. Clearly, the conversion of rental housing to ZEH standards is an essential aspect of the trend toward decarbonization. By utilizing the expertise we gained through the construction of detached houses, we managed to complete our first rental housing units in January 2018 in which all residential units are fully ZEH.\* This project, under our Sha Maison rental house brand, was constructed in Kanazawa Japan. Since then, we have been increasing the number of ZEH rental units across Japan, from Hokkaido to Kyushu.

Two types of ZEH standards apply to multi-unit housing complexes: ZEH-M, which applies the net-zero energy standard to the entire residential building, including common areas; and ZEH, which applies the net-zero energy standard to the individual housing units, in the same manner as detached housing.\* While the ZEH-M standard substantially reduces CO<sub>2</sub> emissions from the entire residential complex, the individual units do not have to meet the ZEH standard on their own. We place significant emphasis on highlighting the benefits of our rental housing to prospective tenants, and we are working to popularize ZEH-M, which satisfies all ZEH requirements. ZEH residential units offer the many benefits of the ZEH standard, such as the comfort provided by high levels of thermal insulation, reduced utility costs, and the sense of security

### Illustration of ZEH multi-unit residence

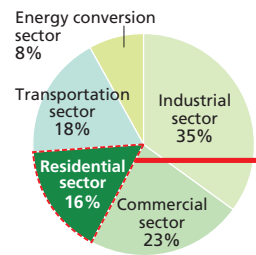


A multi-unit housing complex that aims to achieve a net balance of annual primary energy consumption for the entire building, including common areas

A multi-unit housing complex that aims to achieve a net balance of annual primary energy consumption for each unit in the entire building, including common areas.

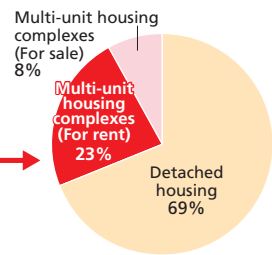
\*For a multi-unit housing complex, four types of ZEH standards are defined depending on the difference in energy efficiency. ZEH is the most effective standard, as it is capable of reducing primary energy consumption by 100% in balance. In contrast, Nearly ZEH represents a 75% reduction in CO<sub>2</sub> emissions, ZEH Ready represents a 50% reduction, and ZEH Oriented represents a 20% reduction. In addition, ZEH-M and ZEH differ in their definitions of evaluation targets, which are "residential building" for the former and "dwelling units" for the latter. [Based on the definition of ZEH for multi-unit housing revised on March 2019 by the Agency for Natural Resources and Energy.]

### Energy-derived CO<sub>2</sub> emissions breakdown by sector



From the Draft Japanese Proposal (Global Warming Prevention Headquarters)

### Breakdown of CO<sub>2</sub> emissions in the residential sector



Estimates from the 2018 Housing and Land Statistical Survey (Ministry of Internal Affairs and Communications) and the 2018 Residential Sector CO<sub>2</sub> Emissions Statistical Survey (Ministry of the Environment)

that comes from knowing that electricity will continue to be supplied in the event of a disaster. When those living in ZEH units voice their high praise of the results, we are confident that demand for ZEH residential units will rise, leading to an increase in the number of ZEH residential units in the market, thus helping to address the climate change issue.

In fiscal 2019, we supplied 58 ZEH-M buildings and 447 ZEH dwelling units for a cumulative total of 103 buildings and 691 dwelling units.

We will continue to strive to popularize ZEH rental housing, which offers value to tenants, building owners, and the environment.



Sha Maison ZEH rental housing in Hiroshima (All units are ZEH.)

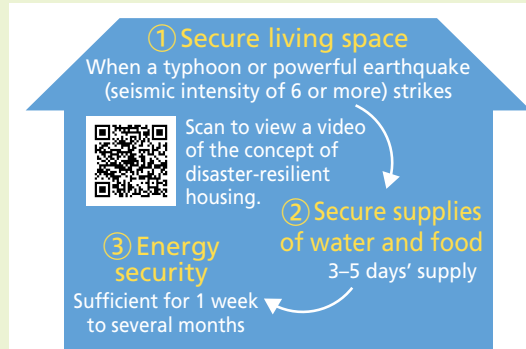
## Highlights

### Sekisui House ZEH structures are disaster-resilient.

In recent years, a series of large-scale natural disasters have sparked interest in the potential of housing to offer safety and security. Sekisui House provides secure living spaces even in the event of a disaster due to their high resistance to earthquakes. We also offer facilities for storing food as well as potable and non-potable water. Similarly, ZEH structures demonstrate their strength in providing the energy needed to maintain the independence of residents in the event of a disaster.

Should a disaster result in a power outage, residents of ZEH structures have access to electricity on sunny days thanks to the solar power generation systems installed. Moreover, residences provided with fuel cells have access to hot water, as they can generate power even in the rain and at night. Similarly, those structures equipped with storage batteries store accumulated power over time, allowing for residents to live independently for longer periods.

In the future, we will continue to promote ZEH structures offering comfort, economy, and environment-friendly features while strengthening and publicizing our disaster-resilient designs.



### Construction of a super-high-rise ZEH condominium

We are also promoting condominiums built to ZEH standards. In February 2019, we completed construction of Grande Maison Kakuouzan Kikuzakacho in Nagoya. This is Japan's first condominium complex to meet the ZEH standard. It has been considered difficult to build multi-unit housing complexes to ZEH standards because of the small rooftop area available for installation of solar panels compared relative to the large number of housing units in the structure. This is a low-rise condominium with only 12 units, however, so it offers sufficient rooftop area.

On the other hand, with respect to high-rise condominiums on which solar panel installation is difficult, Japan has defined and promoted the ZEH Oriented standard, which provides for as much energy-efficiency as possible without the installation of solar panels. For this reason, in fiscal 2019, we broke ground on Grande Maison Uemachidai The Tower PJ in Osaka City. This is a 36-story super-high-rise multi-unit condominium complex in which all dwelling units meet the ZEH Oriented standard. In order to improve energy efficiency, we have equipped all units with high-efficiency air conditioners as well as fuel cells that generate electricity for hot-water supply. One appeal of super-high-rise condominiums is the view from the large windows; however, increasing the area given over to windows, which have inferior thermal insulation performance compared to walls, is a disadvantage when attempting to meet the ZEH standards. However, we have achieved comfort levels equivalent to ZEH while also offering the views available with large windows by specifying high-performance vacuum double-glazed windows and by providing additional thermal insulation in each unit. In fact, the insulation levels exceed the energy-efficiency standards of Hokkaido in chilly Northern Japan.

We will continue to promote ZEH standards with consideration for the unique added value they offer for condominium dwellers.



Grande Maison Kakuouzan Kikuzakacho in Nagoya, a low-rise condominium complex (All units are ZEH.)



Grande Maison Uemachidai The Tower PJ in Osaka City (All units are ZEH Oriented.)



High-performance vacuum double-glazed windows are used throughout. (Illustration)

### Net-zero energy standards for commercial buildings

ZEB, like ZEH, is a net-zero energy building standard that the government is encouraging the construction industry to adopt. The buildings targeted for ZEB have a variety of uses, and a unique ZEB design is required for each application. Sekisui House is focused on promoting ZEB designs employing the Flexible  $\beta$  System, a highly insulated structural skeleton similar to that used in detached houses and Sha Maison rental housing. Utilizing the technology and expertise we gained in the ZEH field, we offer ZEBs that incorporate innovations inspired by energy simulations for business buildings, energy consumption surveys, and questionnaires of facility users. To date, we have a track record of constructing office buildings, nursing facilities, and childcare facilities to the ZEB standard.



The ZEB childcare facility is a bright and comfortable space with large, well-insulated windows.

Action policies ②

## Strengthen energy-saving and energy-generation proposals for remodeling and renovation

Promoting renovation of existing homes to net-zero energy standards

### Implementing *Idokoro Dan-netsu* renovation

#### Activity report

##### Proposing “Family Suite Renovation” for our existing housing

Under the slogan “Comfortable living—now and always,” our group operates remodeling and renovation businesses that contribute to the safety, security, and comfort of our customers.

In September 2019, Sekisui House Remodeling Group, a specialized subsidiary of Sekisui House, launched three remodeling companies\* involved in what we call the lifestyle design business, which encourages families to spend their time together with greater excitement by going beyond the

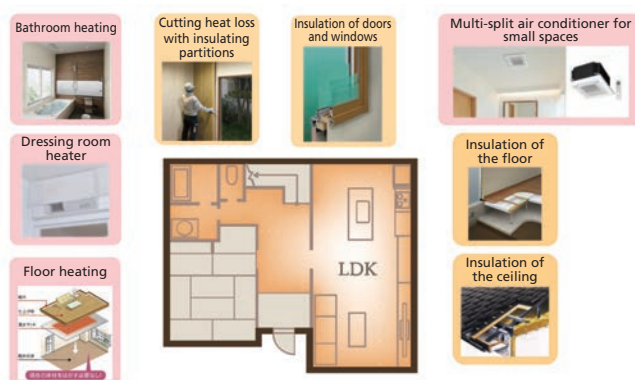
conventional concept of a living room, dining room, and kitchen. By reinforcing the structure of our existing lightweight steel-framed housing, we can renovate partitioned rooms into larger living rooms. In addition, by simultaneously introducing the warming concept of *Idokoro Dan-netsu* by upgrading thermal insulation in the living room, dining room, and kitchen area and by installing equipment offering greater comfort, we can help to reduce CO<sub>2</sub> emissions while enabling families to live in greater warmth and comfort.

\* Sekisui House Remodeling East, Ltd., Sekisui House Remodeling Central, Ltd., and Sekisui House Remodeling West, Ltd.

##### Thanks to enhanced thermal insulation and more comfortable equipment, the *Idokoro Dan-netsu* concept is an excellent way to enjoy roomy and more comfortable living spaces.

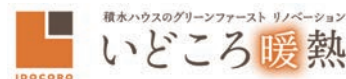
Under the *Idokoro Dan-netsu* concept, we can provide greater comfort to residents by installing additional thermal insulation and remodeling with a focus on the living spaces and in keeping with the desired lifestyles.

By combining the newly developed RF Support Beam System with the *Idokoro Dan-netsu* concept, thermal insulation is upgraded for greater efficiency with emphasis on the living room, dining room, and kitchen spaces. Moreover, the Cocotas multi-split air conditioner is installed for utility areas such as corridors in order to reduce the temperature differences between each room. When undertaking a remodeling project, the Sekisui House Group accurately determines in advance the current state of thermal insulation and other circumstances based on the history of each dwelling unit. By appropriately combining our proprietary thermal insulation and renovation materials, we undertake renovations in a short period of time to exacting specifications even in houses more than 20 years old while enhancing comfort, economy, and environmental considerations.



*Idokoro Dan-netsu* Component List  
(Selected according to customer needs.)

- : Upgraded thermal insulation
- : Installation of equipment providing greater comfort



#### Details of *Idokoro Dan-netsu Premium*

##### Ceiling insulation (attic space)

We improve thermal insulation by adding insulating material on top of the existing insulation or by replacing it with upgraded insulation.

##### Window insulation

We upgrade the weather resistance of the windows by mounting a window on the interior of the existing window or by dismantling the existing sash and replacing it with a new one.



##### Wall insulation

We improve insulation performance by adding superior insulation panels to existing walls or replacing them with a base frame with new insulation.

##### Underfloor insulation

We improve the floor insulation by adding thermal insulation from below the floor without allowing any gaps, or by replacing it with a new floor base (which incorporates thermal insulation).

Action policies ③

## Reduce CO<sub>2</sub> emissions in business activities of the Sekisui House Group

Adopting renewable energy ▶ **50% by 2030, 100% by 2040 (under RE100)**

### Activity report

**We established Sekisui House Owner Denki to purchase post-FIT power from homeowners for use in powering the company's business operations.**

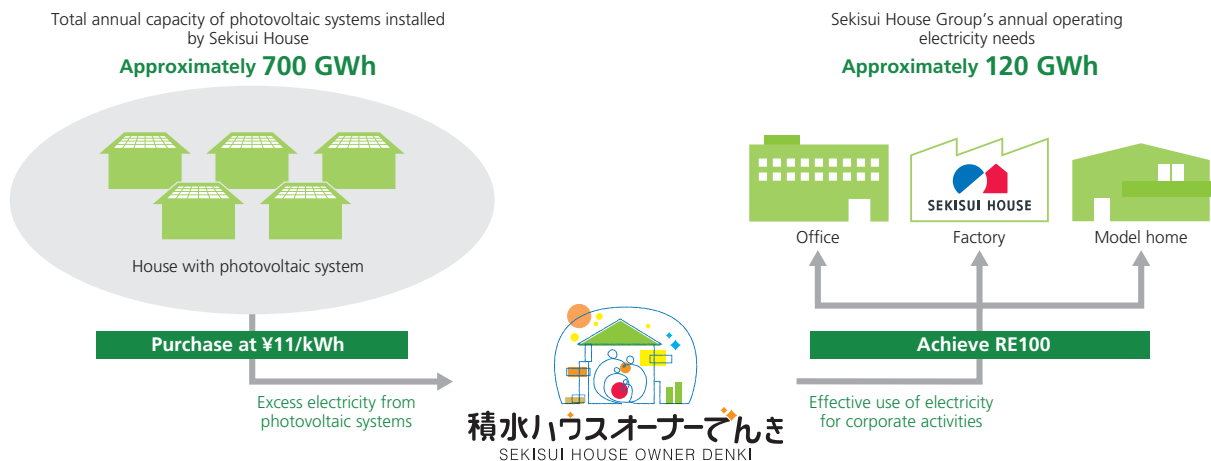
In November 2019, we launched Sekisui House Owner Denki, a system by which surplus power from solar power generators is purchased from homeowners and is used to power the business operations of our group.

Electricity companies began purchasing surplus electricity from solar power systems at a fixed price in 2009. Under the feed-in tariff (FIT) system, the power purchase period (10 years) for residential solar power (less than 10 kW) has expired. This system allows our company to satisfy homeowners by purchasing this post-FIT power at the industry's highest rate\* of 11 yen/kWh.

In October 2017, the Sekisui House Group joined the Japanese construction industry's first RE100 initiative. We committed to sourcing 50% of the electricity used in our business operations from renewable energy suppliers by 2030, with renewables rising to 100% by 2040. For this reason, the electricity purchased at Sekisui House Owner Denki is used for business operations.

As of March 31, 2020, about 47% of homeowners eligible for post-FIT electricity sales have joined Sekisui House Owner Denki.

\*Applicable when no other incidental conditions apply, such as the designation of the power company purchasing the electric power or the requirement that storage batteries be installed



### Year-on-year reduction in CO<sub>2</sub> emissions from commercial vehicles by 1,160 tonnes (3.8%)

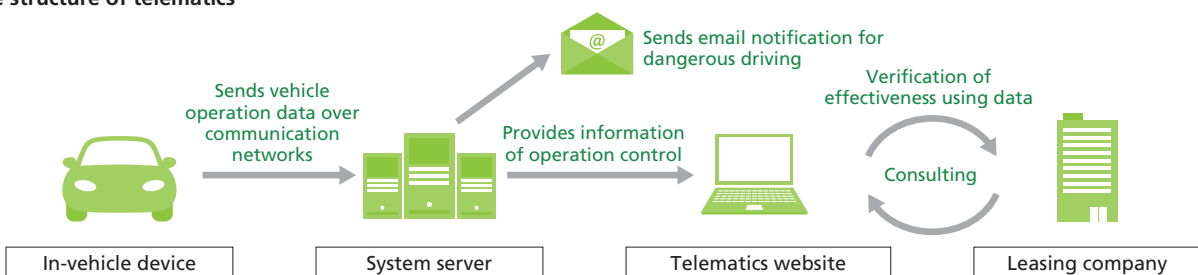
The Sekisui House Group's 12,000 commercial vehicles are equipped with telematics\* devices. We encourage safe and eco-friendly driving practices by promoting routine improvement activities at our business sites and through company-wide, long-term improvement initiatives that utilize driving data such as instances of rapid acceleration or braking. Our group held safe driving training sessions more than 400 times during the year, resulting in a year-on-year reduction in CO<sub>2</sub> emissions of 1,160 tonnes (representing a decrease

of 3.8%) thanks to ongoing practices such as distribution of safe driving notebooks, DVD teaching materials, and sticker production.

Since the introduction of telematics devices for vehicles in 2011, our efforts have earned high praise. Notably, we received the Minister of the Environment's FY2018 Commendation for Global Warming Prevention Activity (Implementation of Countermeasures Category).

\*Telematics is a system that provides information on vehicle operation, such as usage and fuel consumption, as well as dangerous driving, such as sudden acceleration or deceleration, using devices fitted in the vehicles and communication terminals.

### The structure of telematics





**E**  
ENVIRONMENTAL

Building a sustainable ecosystem network through our business operations



Ecosystem-friendly planting



Sustainable wood procurement



Main ESG Themes

# Society in Which Humans and Nature Coexist



Basic concept

Striving to maximize ecosystem networks through our business based on sustainable use of natural capital

As an “ecosystem service,” biodiversity helps to support life and is closely related to commercial activity in terms of raw material procurement.

As a housing manufacturer that has constructed a cumulative total of 2.46 million dwellings, the Sekisui House Group consumes 300,000 cubic meters of wood annually. At the same time, we plant about one million trees nationwide every year, which makes us one of the largest landscaping companies in Japan. Due to these characteristics of our business and our influence through our suppliers, we promote tree planting as part of our business to contribute to the conservation of local ecosystems. Moreover, we seek to procure sustainable lumber and preserve forests that will lead to conservation of global biodiversity.

Action policies ①

## Promoting eco-friendly horticulture as the largest gardening and landscaping company in Japan

Gohon no ki project ► Cumulative number of trees planted by FY2022: **19 million**

Activity report

With 1.09 million trees planted annually, we believe urban tree planting and the *Gohon no ki* project are growing in importance.

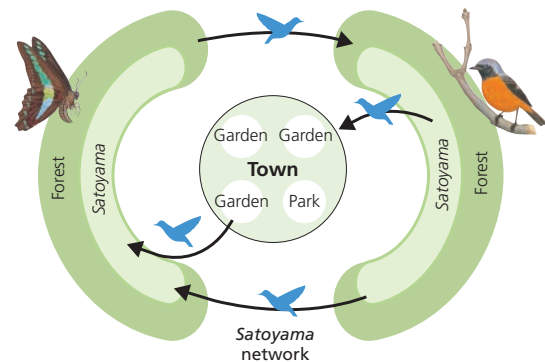
Recent extreme weather events that are believed to be associated with climate change make people’s lives more difficult; moreover, they can damage ecosystems.

In light of the decrease in green space due to urbanization in many parts of the world, effective greening not only supports ecological conservation but also creates leisure spaces necessary for family life while revitalizing the area. Functional greening design supports healthy lives in various ways while also storing rainwater and reducing flood damage.

However, from the perspective of ecosystem conservation, some of the horticultural and exotic trees commonly used for greening are difficult for local birds and insects to utilize. As well, those not suited to the Japanese climate often have low insect resistance.

Therefore, since 2001, the Sekisui House Group has been focused on gardening and landscaping practices that actively incorporate native species likely to be accessible to local wildlife.

Specifically, we have implemented our *Gohon no ki* (or five trees) indigenous landscaping project under the slogan “Three are for birds and two are for butterflies.” We are now promoting this initiative nationwide to help establish a *Satoyama* network that supports habitats for flora and fauna in household gardens while enriching the ecosystem.



In 2019, with the cooperation of specialist researchers, we scrutinized the plant list we had compiled with the assistance of environmental NGOs, local plant grower networks, and our in-house tree doctors. This list reflected a large amount of data on flora and fauna in order to meet market needs. It has since been updated significantly with the addition of suitable tree species.

As a result of this activity, we planted 1.09 million trees in FY2019, including those planted under the *Gohon no ki* project. The cumulative number of planted trees since the start of the project in 2001 has reached 16.11 million.

### Enhancing communication through tree identification panels

After completing development of a system providing detailed planting data for each residence, we have promoted the adoption of communication tools that allow homeowners to enjoy growing plants with greater interest after delivery.

In June 2018, we updated our tree identification panels. These are popular for their smartphone-accessible QR codes, which allow one to easily pull up garden data throughout the four seasons. The available information includes tips on plant flowering, fruiting, and autumn leaves as well as pruning information. The adoption rate has expanded to about 80% nationwide, with a total of 310,000 ID panels issued to date.



Scan the QR code at right to view some of the actual tree planting information. You can also listen to the songs of wild birds who are attracted to these trees.



appeal of a property through the years. As a result, we have developed what we call the Five Environmental Premiums to enhance these landscapes from various perspectives:

① Harmony with the city's appearance, ② Preservation and restoration of the natural environment, ③ Consideration of environmental impact, ④ Design for comfort and ⑤ Design that contributes to safety and security. Each of these items has its own rigorous evaluation criteria, including quantification and visualization to contribute to a pleasant living environment. These items encompass the site, the surrounding environment, and the building itself. We further tightened these standards in fiscal 2019 and supplied 1,691 Sha Maison Gardens buildings containing 16,623 dwelling units, which represents 46% of the target. We intend to increase this to 70% of Sha Maison Gardens complexes within three years.



Residential building in Tokyo combining condominiums and rental units with a variety of greenery

### Attractive greening for rental properties

For rental properties where profitability is emphasized, tree-planting is commonly disregarded as just another additional cost.

However, at Sekisui House, we are actively developing properties that showcase landscape design. We have branded these properties Sha Maison Gardens in the belief that beautification over time resulting from proper landscaping improves the asset value as well as the attractiveness and

## Action policies ②

## Procuring sustainable lumber following extensive due diligence

Promoting the practices of the FairWood initiative

▶ Building a sustainable society through proper lumber procurement

### Activity report

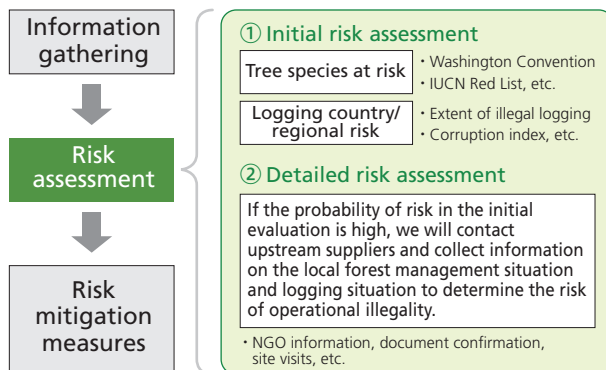
#### Exercising due diligence with relation to procurement

Wood is an essential renewable resource, and we consume about 300,000 cubic meters of wood annually for house construction. However, illegal logging and the pressure to convert agricultural land to oil palm production have led to deterioration of the conservation function of the forest ecosystem, disruption to the lives of local residents, and interference in sustainable forest management. Moreover, because of the complexity of distribution channels, the need to ensure the traceability of wood has become an extremely important issue. In response to this situation, we have been encouraging our suppliers to exercise due diligence by thoroughly monitoring and researching the traceability of the lumber we purchase.

With respect to due diligence, many companies limit the scope of their surveys by excluding medium-density fiberboard (MDF), as it is not subject to legality review under Japan's Clean Wood Act. However, in order to pursue the goal of Zero Deforestation, which is an international requirement, we believe that manufacturers can play an important role by providing advice to suppliers of wood building

materials regarding the tracking process in order to improve sustainability. In addition, in an effort to disclose the state of progress, we demonstrate thorough due diligence with regard to base materials, interior finishing materials, and equipment.

#### [Due Diligence Practices]





## Mechanism and progress of sustainable wood procurement: Rank S and Rank A wood ratio of 95%

In terms of procurement, we have adopted 10 policies under our Wood Procurement Guidelines that take into consideration legality, the health of the ecosystems of the felling areas, and the lifestyles of the residents of the logging areas. Since 2006, we have been conducting annual surveys on the procurement status of about 50 suppliers of wood building materials, receiving reports on the legality of the procured lumber, the place of production, and attributes, quantifying them according to guidelines, and managing their progress. In fiscal 2019, we were able to proceed with confirmation of a new tropical peat forest during the survey.

For projects with insufficient assurance of traceability, we exercise thorough due diligence by visiting local production sites, conducting surveys, and confirming facts on the ground.

Through these activities, we are seeking to achieve Zero Deforestation, thus halting the destruction of forests that leads to destruction of the ecosystem.

In fiscal 2019, we were able to achieve our management target of a 95% ratio for Rank S and Rank A lumber. Although we do not set targets for use of certified materials alone in consideration of the healthy development of community forestry, 66% of all our wood building materials, including those used for interior installation, and 93% of structural wood we use, are FSC/PEFC certified (including certified processed wood). The ratio of certified products itself has been declining due to an increase in the adoption of domestic structural materials that undergo little certification even though they are sourced with sustainable forest management methods.

### 10 Wood Procurement Guidelines

- ① Source wood products from areas with relatively low risk of illegal logging.
- ② Source wood products from areas without sensitive ecosystems.
- ③ Do not source wood products from areas where local ecosystems are seriously damaged due to large-scale logging of natural forests.
- ④ Do not use endangered species for wood products.
- ⑤ Minimize CO<sub>2</sub> emissions when producing, processing, and transporting wood products.
- ⑥ When logging wood products, avoid conflict with local communities and refrain from unfair labor practices.
- ⑦ Source wood products from areas of controlled logging, so as not to exceed the rate of forest regeneration.
- ⑧ Source wood products from domestic forests where well-planned forest management is in place to conserve ecosystems.
- ⑨ Source wood products from plantation forests that are managed so as to promote conservation and ecosystem development.
- ⑩ Use recyclable wood building materials.

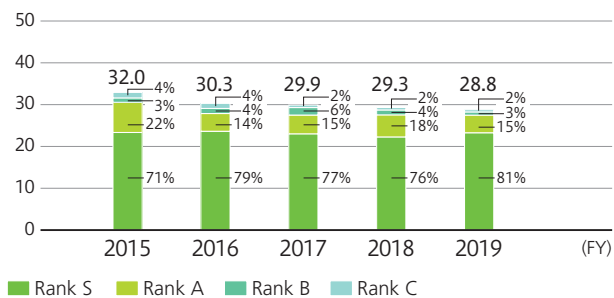
### Wood product procurement ranking

Depending on their total score, procured wood products are classified into four ranks, from high to low: S, A, B, and C. Minimally acceptable scores are set for Guidelines ① and ④, as we place a high priority on these two items.

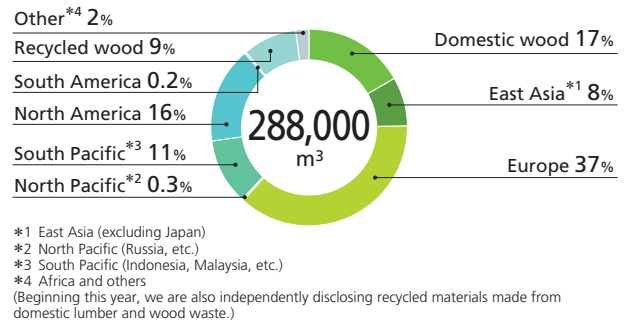
Total score (maximum 43 points)	Rank
34 and above	S
26 to 34	A
17 to 26	B
Below 17	C

### [Results of FTY2019 Survey]

#### FairWood procurement volume and rank breakdown (10,000 m<sup>3</sup>)



#### Percentage of wood products by region



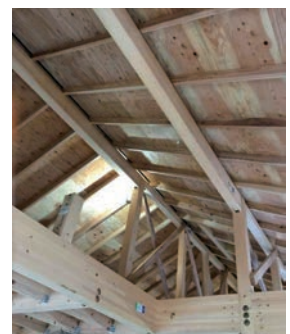
## The first housing provided under SGEC Forest Certification Japan

With the recent increase in environmental awareness among consumers, growing numbers of homebuyers are showing interest in certified housing.

Japan has a centuries-long history of forestry and lumber use. SGEC Forest Certification Japan is a domestic forest certification system that determines whether wood is sustainably and properly managed. Reciprocal recognition has been granted with the PEFC Council, global alliance of national forest certification systems.

In 2019, we built Japan's first private home recognized under SGEC/PEFC Project CoC Whole House Certification. We collaborated in the construction of the house with Mori for Forest Certification Company (a company under Masako Mori, Director, and located in Suita, Japan), a joint venture company that promotes the spread and adoption of SGEC/PEFC certification. At the time of certification, we performed all

work necessary to verify that at least 70% of the wood used in construction was certified in Japan, and that other wood-derived materials were obtained from appropriately managed forests, including paper products such as wallpaper and *fusuma* paper. A confirmation effort was undertaken to ensure that this material was derived from appropriately managed forests. We were able to gain knowledge and expertise regarding forest certified houses through our efforts to obtain detailed information from all suppliers; this included tree species, production areas, and whether local NGOs had indicated any issues. We are considering using this experience to provide new choices in the housing we offer in the future.



Internal structure of SGEC certified housing

## Eco-friendly gardening and landscaping activities

### Practicing urban ecology through the *Gohon no ki* indigenous landscaping project

Initiatives intended to protect the natural environment, which are highlighted in the SDGs, are attracting attention. From the standpoint of scientists studying biodiversity and ecosystems, it is important to witness the actual effectiveness of various actions. In the case of private enterprises in particular, initiatives targeting achievement of the SDGs are not sustainable in themselves if it is not clear how much a particular initiative contributes to the achievement of a conservation goal, or how efforts related to the initiative will contribute to improved corporate value.

The *Gohon no ki* indigenous landscaping project adopted by Sekisui House recommends the selection of residential garden trees under the belief that “with native trees in Japan, three trees are for birds and two are for butterflies.” In other words, the *Gohon no ki* project is based on a commitment to conserve and restore local biodiversity, and its effectiveness can be quantified from the perspective of Goal 15 of the SDGs, which is focused on maintaining the health of the land.

According to the big data biodiversity analysis by Kubota Laboratory, the *Gohon no ki* garden tree proposal covers 30–45% of the woody species that grow naturally in Japanese prefectures. The high coverage of tree species diversity from the planting of garden trees is noted for its effect on the regeneration and conservation of the biological communities that form the foundation of terrestrial ecosystems. It is worth noting that a cumulative total of more than 16 million trees have been planted since 2001 under the *Gohon no ki* project. According to our analysis, the number of trees in Japan is estimated to

be at least 20.9 billion, and the number of trees in the forests and green areas remaining in urban areas, where 70% of the population of Japan is concentrated, is 39.05 million tall trees as well as small shrubs. Thus, the number of urban trees is only 58.88 million. Therefore, the large number of trees being planted in residential gardens under the *Gohon no ki* project will be an outstanding achievement in terms of the natural regeneration of the city. The planting of garden trees will also have the effect of strengthening the carbon dioxide sequestering function of the city, which contributes to the mitigation of climate change.

The ecological design of residential gardens under the *Gohon no ki* indigenous landscaping concept is not limited to enriching people’s living spaces through their functionality in terms of scenery and healing. The gardens that people love may be very small, but garden trees provide space for the growth of a variety of organisms, and each garden functions as a link in a network to regenerate urban ecosystem services. This has the potential to regenerate the practice of urban ecology. The planting of garden trees under the *Gohon no ki* project may represent one solution to our global environmental challenges.



**Professor Yasuhiro Kubota**  
Faculty of Science  
University of the Ryukyus

## Sustainable wood procurement as promoted under the FairWood initiative

### Global adoption of due diligence and the FairWood initiative for wood procurement

In 2008, a law was enacted in the United States to eliminate illegal lumber from the market. Since then, the EU and other countries and regions have followed suit, and in the past 10 years, the idea of supply chain management of the wood supply has been rapidly gaining ground. The common denominator in this trend is the exercise of due diligence. An increasing number of companies are practicing due diligence, which encompasses ESG factors, with respect to their wood purchases in terms of (1) collecting information, (2) implementing risk assessments, and (3) practicing risk mitigation to identify risks of illegality.

As an expert who has been monitoring these trends for about 15 years, the most distinctive feature of Sekisui House’s FairWood procurement initiative is that it positions due diligence as an investment in the world and in the future of the planet. By recognizing its responsibilities as a major manufacturer and its influence on suppliers, and by proactively analyzing and responding to ESG risks that are highly relevant to the company, Sekisui House clearly aims to contribute to the emergence of a sustainable society as a whole. Among the 10 indicators of FairWood procurement, it is only natural to comply with “legality” in addition to the need for ecological conservation, CO<sub>2</sub> reduction at home and abroad, and consideration of the social welfare of local residents; consequently, the company has accumulated a substantial procurement record.

In the exercise of due diligence, increasing the proportion of certified materials is often identified as one goal. As conversion of forest land to agricultural land is rapidly progressing around

the world, the certification system itself is considered a visible tool for countering deforestation. However, in the case of Sekisui House, the final goal is not simply to utilize certified materials; the company is practicing responsible procurement from the perspective of identifying potential risks through due diligence and by investing in the future of the planet. Examples include branding of domestic lumber as part of the evaluation of community forest lumber that supports domestic producers; and small-scale agroforestry that encounters high hurdles to obtaining certification. Due diligence is not originally uniform. Optimizing and creating original products is one of the most effective options for individual companies while at the same time serving as an element of differentiation from others.

Ecologically rich natural tropical forests that regulate climate and temperature are rapidly disappearing, but the Japanese lumber industry and consumers alike still do not seem to have responded by exhibiting any sense of crisis. In the future, we hope not only to expand our efforts within the company, but also to raise awareness of the idea of investing in the future of the planet through the construction industry and peripheral industries with the support of consumers and suppliers.



**Dr. Mari Momii**  
Forestry Issues Consultant  
The Royal Institute of International Affairs  
(Chatham House)



Optimizing the entire lifecycle and improving resource efficiency



Effective zero emissions



Improving the quality of recycling



Main ESG Themes

# Circular Economy



Basic concept

We will optimize the use of resources at production, construction and all other stages while supporting the creation of a circular economy through recycling-oriented businesses throughout the product lifecycle.

Under the SDGs, Goal 12 requires that companies ensure sustainable production and consumption patterns in order to stabilize the lives of all as demand for resources and energy increases along with the growth in the global population. It is essential that companies work to optimize the entire lifecycle of their products and improve resource efficiency. The housing industry is expected to develop and popularize recycling technologies while also promoting services and support in line with social trends. The objective is to increase the value of housing stock available in society.

Action policies ①

## Achieving zero emissions throughout the product lifecycle

Effective zero emissions **▶ Continuing and expanding our 100% zero emissions initiative throughout the production, construction, and maintenance phases**

Activity report

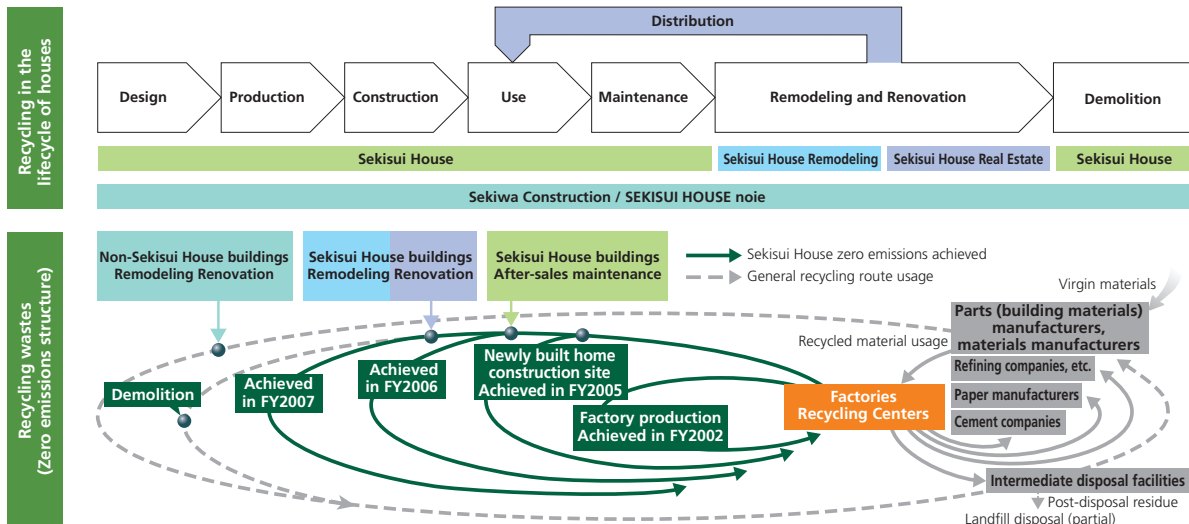
### Expanding zero emissions in an ongoing effort to achieve the 100% goal

The housing industry consumes a large amount of resources. Industrialized housing systems that produce the basic structural skeleton in a factory have proven to be effective systems for increasing resource productivity when used in combination with a built-to-order production system. Accordingly, we managed to achieve the zero emissions\* standard in our plants in 2002. In 2004, we applied under the Wide Area Certification System, a special case of the Waste Disposal Law, thus becoming the first in the industry to be so certified. We fully adopted this system as we expanded

the range and accuracy of zero emissions in the field, later obtaining certifications for new construction sites in 2005, maintenance in 2006, and renovation in 2007. In 2019, all 17 members of the Sekiwa Construction Group, our subsidiary, filed a joint application for the Wide Area Certification System, which was approved. This was aimed at adopting zero emissions policies for newly built wooden houses contracted by the Sekiwa Construction Group and will further strengthen our group-wide resource recycling system to complete our recycling business.

\*Eliminating industrial waste incineration and waste sent to landfills for disposal.

### Increasing the life of houses through circular business model based on in-group alliances



## Action policies ②

# Demonstrating the merits of integration through group collaboration

Effective zero emissions ► **100% recycling of waste from repairs undertaken on vacated rental housing**

### Activity report

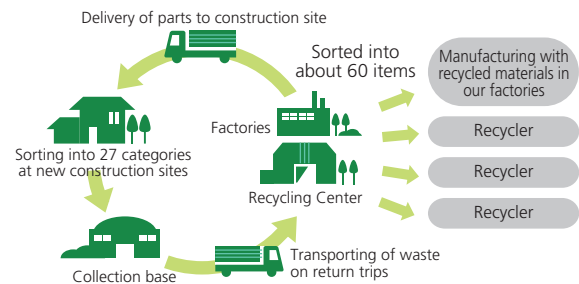
#### 100% recycling of waste from repairs undertaken on vacated rental housing

One of the characteristics of the collection system instituted under our Wide Area Certification System is the use of our Recycling Centers. Waste generated at new construction sites scattered all over the country is collected at the facilities of our Recycling Centers. The waste is sorted at construction sites into 27 categories and is then re-sorted into about 60 items (of a total of 80 categories) at our 21 Recycling Centers nationwide. We manage the recycling of all wastes under our control.

In addition to our zero emissions initiative centered around the lifecycle of our products, we have been promoting zero emissions since the introduction of our model business in the Chubu area. Moreover, Sekisui House Real Estate (formerly

Sekiwa Real Estate), the brokerage managing the Sha Maison rental housing we constructed, recycles waste from repairs undertaken on vacated rental housing.

#### Waste disposal flow through our recycling centers



## Action policies ③

# Changing the focus of recycling systems from quantity to quality

Improving the quality of recycled products ► **90% material recycling rate**

### Activity report

#### Promoting zero emissions with a material recycling rate of 83.1%

Thanks to our zero emissions initiative, the amount of waste generated per building has been reduced by a substantial 60% since FY1999. Following the phase in which we were able to significantly reduce the amount of waste generated, we are currently maintaining that level of waste reduction.

However, with the recent global trend toward emphasizing a “circular economy,” it is becoming more important not only to reduce the amount of waste generated, but also to design the entire business around an effort to improve the quality of recycling.

In light of this trend, we have been improving our construction methods by incorporating feedback from reviews of our construction methods. We are doing so by utilizing the strengths of our in-house production and direct construction that is not based on the agency method.

Moreover, by practicing thorough sorting in order to sort, categorize, and process waste to meet the exact needs of recyclers, we are contributing to a higher quality of recycling.

At the same time, we are conducting research on our attainment of an 83.1% recycling rate in FY2019 with the aim of reaching 90% of our zero emissions goal during the production, construction, and maintenance phases.



At our recycling centers, plastics alone are sorted into about 20 categories.

#### Examples of products resulting from our in-house processing of recycled materials

We collect scrap plasterboard from new house construction sites and mix it with crushed eggshells collected from food processing plants. This produces Platama Powder, an athletic field marking chalk made from recycled products.



Platama Powder, an athletic field marking chalk that poses no risk to human health



#### Researching recycling methods for difficult-to-process composite materials

In the future, we will enter the phase of promoting the recycling of composite materials, which present a challenge for recyclers, and the development of building materials that can later be recycled. In 2019, in order to promote research on this difficult problem, we undertook research and development in collaboration with academia and in conjunction with recyclers to address the recycling of composite materials.

Action policies ④

## Improving resource efficiency through active adoption of information and communications technology

Ensuring circulation traceability through information and communications technology



### Introducing a 100% waste measurement system

#### Activity report

##### Ensuring effective use of resources through traceability

Securing traceability related to the proper disposal of construction waste is of the utmost importance not only to demonstrate responsibility for proper treatment and recycling of waste, but also for promoting recycling business models such as streamlined construction.

Recognizing this, we have been proactive in introducing information and communications technology, starting with the trial of a waste measurement system using IC tags in 2007.

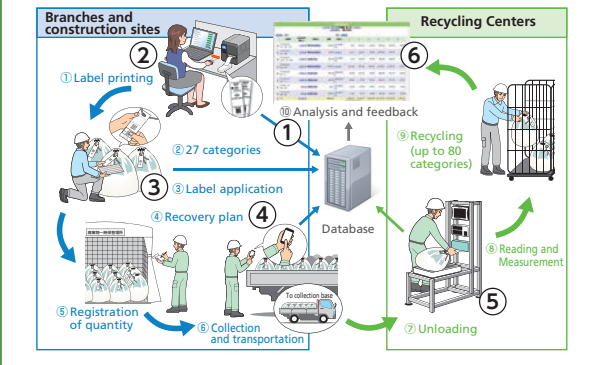
Moreover, in 2017 we updated our proprietary Electronic Processing System for waste collection into a cloud-based system in order to respond flexibly to requests for enhancement of electronic system functions for waste management. We now operate a waste measurement system that utilizes current QR codes. This is an innovative system that accurately monitors the situation at the time of disposal, aggregates and analyzes data from each building, and monitors the total disposal amount and the disposal amount by type of waste in real time.

By feeding back the detailed data analyzed in this way for product development, material design, production processes, and construction processes and the like, it is possible to promote the more effective use of resources.

In 2019, the utilization rate of this system was 100% on a business facility basis.

##### Waste measurement system incorporating QR codes

- ① Timely processing is assured because the waste measurement system is accessed through the cloud in conjunction with the residence information database, which arranges and reduces parts and specifications and centralizes residence information and member information.
- ② A QR code label is printed according to the scale required for construction.
- ③ Requests for appropriate collection are issued from a smartphone or the like according to the waste conditions at the new construction site.
- ④ Collection trucks are dispatched as needed while linked to a map application on the cloud. They are also closely linked to the property information database.
- ⑤ Label information is read and the weight is registered.
- ⑥ Various analytical data such as an analysis of the amount of waste from each model is fed back to the business offices, development departments, factories, etc. Close cooperation among departments contributes to effective environmental initiatives.



Action policies ⑤

## Plastics Smart initiative

Plastics Smart initiative



### 100% recovery of plastics at construction sites and significant reduction in the use of beverages packaged in PET bottles

#### Activity report

##### Eliminating the use of more than 370,000 plastic bottles

We are pleased to have achieved zero emissions in our business processes, and in fiscal 2019 we recovered 100% of the plastics used at construction sites, with 18,974 tonnes recycled annually.

At the same time, in order to raise awareness of the need to reduce single-use plastics from day-to-day use among employees, we have been participating in the Plastics Smart for Sustainable Oceans Campaign promoted by Japan's Ministry of the Environment, which calls for the following:

- ① No distribution or use of plastic bottles at internal meetings; replace with personal-use bottles or eco-friendly paper cups.
- ② Elimination of beverages packaged in PET bottles from vending machines installed in-house.

After one year of implementation, the verified results reveal



that the number of beverages packaged in PET bottles purchased through in-house vending machines (countable amount) was 526,485 in 2018, but only 154,212 in 2019. We have thus achieved a reduction of more than 370,000 bottles, which represents a reduction of about 70%. (In some cases, beverages packaged in PET bottles are required to combat the risk of heat stroke and other such conditions, so a 100% reduction is not achievable.)

Employees have expressed their opinions regarding this campaign, such as the following: "The number of people who bring their own bottles and cups has increased, as have conversations regarding the problem of plastic waste, which has led to greater environmental awareness among employees."

According to the PET Bottle Recycling Promotion Council, a total of 22.7 billion beverages packaged in PET bottles were consumed in Japan in FY2016. Although the reduction achieved by our efforts is small, we will continue to support the implementation of the Plastics Smart Campaign with other companies and stakeholders.



# Eco-First Promise

Sekisui House was certified as an Eco-First Company by the Japanese Minister of the Environment in June 2008 for making three promises (Eco-First Promise)—global warming prevention, ecosystem preservation and resource recycling. We have been conducting environmental activities with a view to fulfilling these promises.

In 2012 and 2016, we updated our Eco-First Promise within the broad frameworks of the three promises while incorporating changes in social environment and the progress in our initiatives to intensify our efforts. The content of the Eco-First Promise will be updated in 2020.

## The Eco-First Promise (updated 2016, excerpt)

\* Scan the QR code at right to view the full text as a PDF file.



### 1. Proactive reduction of CO<sub>2</sub> emissions in the residential sector and business activities (Global warming prevention)

#### Our promises

- To aim for over 27% reduction in primary energy consumption in the residential sector, including housing stock, by 2030, corresponding to Japan's targets (39.3% reduction in CO<sub>2</sub> compared to 2013).
- To actively introduce energy-saving air conditioners, eco-friendly cars and LED to surpass the target values (10% reduction in CO<sub>2</sub> emissions in 2020 in comparison to FY2010) set by the Japan Prefabricated Construction Suppliers and Manufacturers Association for CO<sub>2</sub> emissions from business activities of the group.

#### Major progress in FY2019\*<sup>1</sup> ZEH\*<sup>2</sup> ratio in custom detached houses

# 87%

\*1 April 1, 2019 to March 31, 2020  
\*2 Net-zero energy housing



Green First ZERO sales promotion

### 2. Proactive revival of ecosystem network (Ecosystem preservation)

Creating a society that enables a fulfilling and comfortable lifestyle through use of sustainable natural capital.

#### Our promises

- To actively carry out planting plans (*Gohon no ki* project) focused on species native to the region to promote landscaping in houses and the community and aim for planting a total of 15 million trees by 2020, which marks 20 years since the launch of business activities based on the *Gohon no ki* project.
- To introduce FairWood lumber in cooperation with suppliers and NGOs with a view to preventing illegal logging and loss of natural ecosystems and making the economies of the production areas independent.

#### Major progress in FY2019 Total number of trees planted

# 16.11 million

The 2020 target was achieved in fiscal 2018.  
The number of trees planted in fiscal 2019 was 1.09 million



Promoting the *Gohon no ki* project

### 3. Proactive promotion of resource recycling activities (Resource recycling)

Striving to increase the value of social assets by promoting revitalization of cities and communities and carrying out proposal-type renovation.

#### Our promises

- To install a new collection system using resource recycling centers and accelerating zero-emission throughout the group.
- To continue with zero-emission (zero landfill, zero waste incineration not involving heat recovery) at the time of production, construction and after-sales maintenance and aim for 90% recycling of materials.

#### Major progress in FY2019 Material recycling rate at the time of production, construction and after-sales maintenance

# 83.1%



Separating waste at a resource recycling center

## Highlights

### Sekisui House Eco First Park, a site for environmental education: 4th anniversary symposium held to commemorate the opening

Sekisui House Eco First Park features symbolic model facilities we have been working on throughout the history of our environmental activities including three test houses, the *Gohon no ki* landscaping concept garden Living Garden, and a resource recycling center Resource Wellspring, which achieves zero emissions by separating into as many as 80 categories wastes that are first separated into 27 categories at the construction sites. This park is open to the general public and operates adjacent to the Kanto Factory in Koga, Ibaraki Prefecture. It also serves as a location for environmental education for students ranging from elementary school to university and encourages them to consider what can be done in relation to housing that will benefit the global environment.

In November 2019, an environmental symposium attracting 230 participants was held in Tokyo to commemorate the 4th anniversary of the opening of the park. Masako Konishi of WWF Japan gave the keynote speech and reported that the 1.5°C climate reduction target is now the mainstream internationally. In a discussion session by the environmental and sustainability managers of three participating Eco-First companies (Toda Corporation, Lion Co., Ltd., and Sekisui House, Ltd.), it was emphasized that all should work together to achieve the 1.5°C climate reduction target.

Scan here to apply for a visit to the facility.



Sekisui House Eco First Park



Kenichi Ishida, our Managing Officer, introduces our environmental initiatives.