

June 17, 2008

Toward the Hokkaido Toyako Summit, July 7-9, 2008 — Announcing Japan's cutting edge prefabricated housing and environmental technology to the world: The Zero Emission House



Image of Zero Emission House exterior.

The building on the left is a footbath that uses hot water from a fuel cell

The Hokkaido Toyako Summit, the G8 summit being hosted by Japan, will be held over three days from Monday July 7 to Wednesday July 9, 2008 at the town of Toyako in Hokkaido, and will focus mainly on global warming prevention measures.

To coincide with the summit, the Ministry of Economy, Trade and Industry is constructing the Zero Emission House, which is a futuristic residential house featuring photovoltaic cells, fuel cells and other superior Japanese environmental technology. The display will be located beside the International Media Center (IMC) being constructed within the grounds of the Rusutsu Resort, 27 km from the summit venue at the Windsor Hotel. Sekisui House is collaborating in the construction of the Zero Emission House by providing the high earthquake resistance, energy saving functions and other advanced Sekisui House prefabricated housing technology.

The Zero Emission House is a single-storied steel structure prefabricated house with a total floor area of approximately 200m² and an exterior that has been designed to imbue traditional Japanese beauty. The house will showcase state-of-the-art Japanese energy and environmental technology to the world, with features including a 14.5kW capacity photovoltaic generation system, energy efficient lighting, a household fuel cell, and energy saving household appliances. Construction of the Zero Emission House will be completed by the end of June, and the exhibit will be open to media professionals from Japan and overseas during the summit.

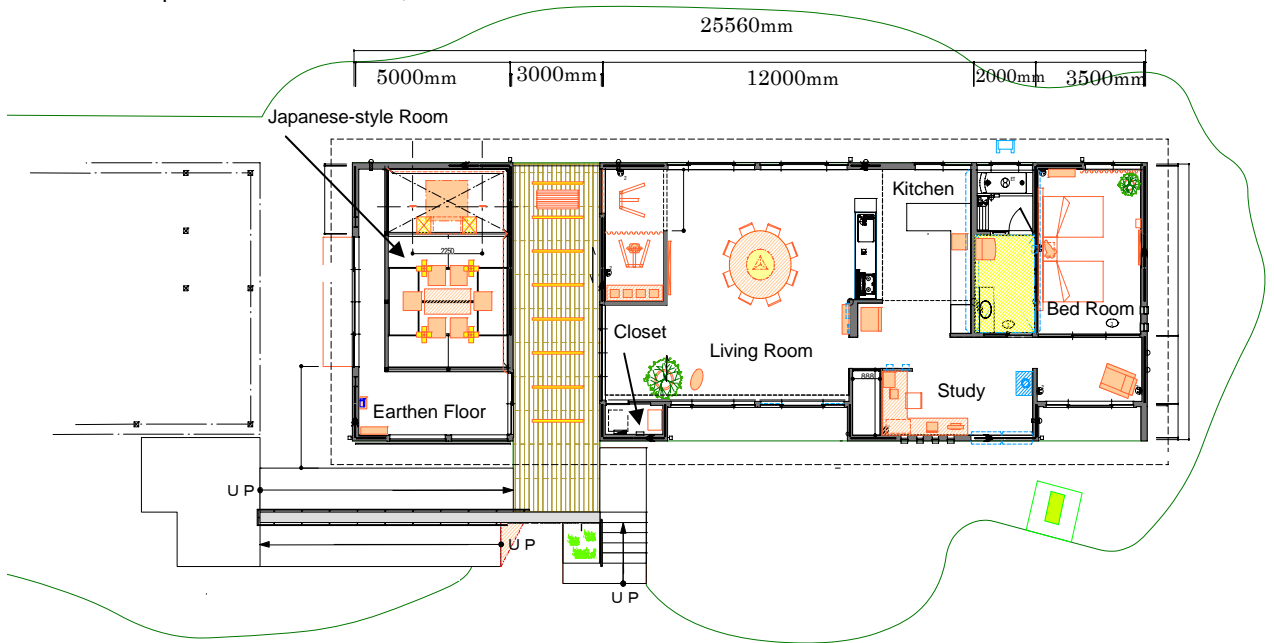
In June 2005, Sekisui House initiated its Action Plan 20, a set of measures aimed at achieving comfortable living spaces while reducing the CO₂ generated by occupancy. Sekisui House began sales of the Carbon Neutral House in April 2008, using sophisticated energy saving technology to reduce and offset CO₂ emissions through power generation from a photovoltaic generation system and fuel cell to reduce net CO₂ emissions almost to zero. Sekisui House has achieved zero emissions at its manufacturing factories, new house construction sites, and recently also at its remodeling sites, and is also reducing materials usage and implementing a range of other measures to reduce CO₂ emissions throughout the entire lifecycles of the buildings it constructs.

The Zero Emission House goes one step beyond Sekisui House's Carbon Neutral House in its use of state-of-the-art global warming prevention technology, and the CO₂ reduction achieved with its photovoltaic generation system substantially exceeds the volume of CO₂ emissions. Using the Sekisui House management system, zero emission of waste material has been achieved at the Zero Emission House construction site.

■ Outline of Zero Emission House

1. Construction

1. Construction site: 13, Izumikawa, Rusutsu-mura, Abuta-gun, Hokkaido (in front of Rusutsu Resort Hotel)
2. Structure: Single-storied light steel structure (seismic damping structure)
3. Floor area: 196.57m²
4. Completion date: June 29, 2008



2. Building features

1. Prefabricated housing: Japan's unique prefabricated housing combines excellent earthquake resistance and insulation properties

Sekisui House's accredited prefabricated residential housing uses a Universal Frame System that balances excellent structural strength with freedom in architectural design. The unique production technology that Sekisui House has accumulated over many years of research and development, along with the strict quality control at its factories, ensures that the materials Sekisui House produces provide both high quality and consistent performance.

2. Earthquake damper system: Sekisui House Earthquake Energy Absorbing System (SHEQAS)

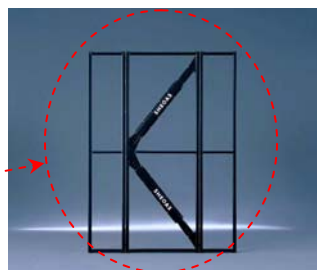
Sekisui House developed its unique damper system *SHEQAS* to address the destructive power of earthquakes. The innovative technology in *SHEQAS* absorbs the physical seismic energy of earthquakes by converting it to heat energy for diffusion, acting as a brake on earthquake-induced movement. The system reduces building deformation by half, and has excellent durability, exerting the same effect in subsequent earthquakes.

3. Exterior wall: Sekisui House original *ECORDEC* exterior wall and anti-dirt coating *Tough Clear E*

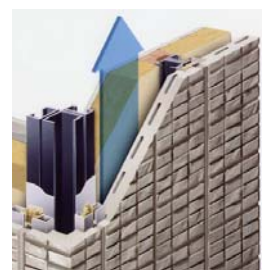
The *ECORDEC* exterior wall is Sekisui House's original external wall, and has high durability and excellent structural strength. The composite wall structure combines superior insulation with a construction that promotes indoor air circulation using natural aeration to maintain dry conditions. Also, the anti-dirt coating *Tough Clear E* uses a special coating on the external surface to create superhydrophilicity on the coating surface to cleanse away dirt. Light on the photocatalytic layer generates active oxygen molecules to decompose airborne nitrogen oxides, thereby purifying the air.



Structural diagram of *Universal Frame System*



SHEQAS Frame

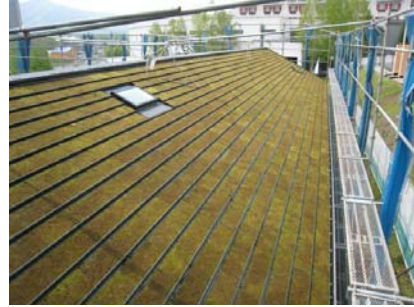


ECORDEC and *Tough Clear E*

4. Roof: High capacity photovoltaic generation system on south face; roof vegetation on north face (under development)

A 14.5kW photovoltaic generation system fitted to the south face ensures effective use is made of the sun's energy, while its tiling structure preserves the appearance of the building exterior. The energy generated by the system is more than sufficient for the needs of the average household.

Sunagoke moss, which efficiently stabilizes CO₂, is planted across the entire north face. Roof vegetation such as this is one measure to prevent heat island phenomenon, in which temperature rises are accelerated by heat radiation from structures and because of other factors, particularly in summer. Sunagoke moss is resilient in dry conditions and requires almost no maintenance; combining it with roofing materials makes it possible to limit the temperature rise on the surface of the roof and also limit increases in room temperature .



Photovoltaic cells and roof vegetation tiling (south face) Roof vegetation tiling (north face)

3. Main environmental technology (in addition to photovoltaic generation system and roof vegetation outlined above)

1. Ventilation System:

Amenity Ventilation System II—24-hour air cleansing

The centralized Amenity Ventilation System II controls the ventilation of rooms 24 hours a day. A thermal exchange system brings external air to room temperature prior to intake, thus reducing the air conditioning load to enhance the level of comfort indoors. A ventilation unit fitted with a cyclone unit and high performance external air cleaning filter greatly reduces the indoor penetration of pollen, a common cause of allergies.



Cyclone unit

2. Recycled glass materials:

Reborn Glass—Recycling waste glass as a construction material (under development)

Large amounts of waste glass are generated when housing is dismantled. A large proportion of this glass is disposed of as waste due to non-glass components that prevent it from being recycled. *Reborn Glass* is a recycled glass material that uses new technology to recycle waste glass as a construction material. The glass be used as a material for both internal and external construction, and the technology enables a waste glass composition ratio of 95%.



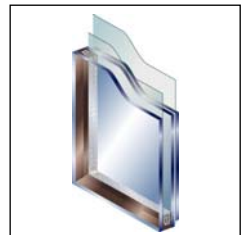
Reborn Glass

3. Vacuum insulation glass:

SPACIA 21®—Multi-layered vacuum glass with excellent insulation properties equivalent to regular insulation materials

SPACIA 21® *is a hybrid multi-layered glass, which combines the extremely high insulation properties of SPACIA vacuum glass with Low-E glass. SPACIA 21 makes it possible to design architecture with large north-facing apertures to create a living space that offers enhanced air circulation in summer and improved insulation in winter.

*SPACIA 21 is a registered trademark and patented product of Nippon Sheet Glass Co., Ltd.



SPACIA 21®

■ Zero Emission House facility: sponsors and co-sponsors

- Sponsors: Ministry of Economy, Trade and Industry
- Co-sponsors: New Energy and Industrial Technology Development Organization
- National Institute of Advanced Industrial Science and Technology
- New Energy Foundation

● For further information, please contact:
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(For reference)

■ Sekisui House initiatives to reduce CO₂ emissions

Sekisui House has been contributing to the reduction of residential CO₂ emissions since adopting its own specifications that meet the next-generation energy saving specifications standard at all its residential housing from August 2003. In addition, since June 2005 Sekisui House has been implementing *Action Plan 20*, which targets a 20% reduction in CO₂ emissions from the projected residential energy consumption in 2010 (a 6% reduction from 1990 levels) as part of a specific behavioral policy based on the Declaration of Sustainability announced in April 2005.

Action Plan 20

Under *Action Plan 20*, CO₂ emissions are reduced at all Sekisui House detached houses through the standardization of next-generation energy saving specifications and high efficiency hot water supply systems and the active recommendation of photovoltaic generation. Sekisui House is also engaged in initiatives to reduce residential CO₂ emissions at existing Sekisui Houses while enhancing comfort levels in the living environment, by promoting the changeover to forms of efficient insulation such as thermal barriers, multi-layered insulation glass and insulation sashes.

Carbon Neutral House

Sekisui House is actively engaged in promoting the adoption of fuel cells, and in April 2008, having already reduced residential CO₂ emissions to a minimum through the use of sophisticated energy saving technology, Sekisui House began sales of its Carbon Neutral House, which uses energy generation from photovoltaic generation system and household fuel cell to offset the remaining CO₂ emissions, thereby attaining close to net zero CO₂ emissions.

Zero emissions initiatives

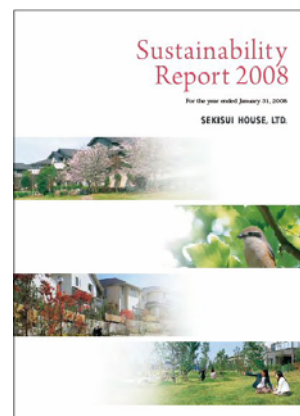
Sekisui House has achieved zero emissions at its production factories in 2002, at its new house construction sites in 2005, in after-sales service in 2006, and in house remodeling sites in 2007, and by reducing the materials it uses is pursuing CO₂ reduction throughout the entire life cycles of the buildings it constructs.

Gohon no ki gardening concept

Sekisui House promotes comfortable and environmentally conscious housing, through the use of its *Gohon no ki* gardening concept, which aims to recreate Satoyama in the garden in order to encourage birds and butterflies and thereby enable harmonious coexistence with surrounding nature, as well as through the skillful design of spaces that allow for wind flow and sunlight. Including trees planted as part of the *Gohon no ki* gardening concept, Sekisui House planted more than 800,000 trees in fiscal 2007, ended January 31, 2008.



Action Plan 20



<http://www.sekisuihouse.co.jp/english/sustainabilityreport/2008.html>