

## Environmental Impact Case Studies

### An outline of Daiwa House's environmental protection activities — from houses to buildings and hotel operations

#### Housing:

##### Preventing global warming through energy conservation

All ceilings, external walls, and floors in our housing products are designed for efficient thermal insulation. Moreover, doors and windows are constructed of materials that are good insulators, and thus the insulation efficiency of the house as a whole is high. This reduces energy consumption by heating and air-conditioning equipment, achieving energy conservation without detriment to comfort. These homes produce, directly or indirectly, only one-third the volume of carbon dioxide emissions stipulated by the Housing Loan Corporation's general energy conservation standards for housing.

##### Preventing global warming through creation of new energy sources

The burning of fossil fuels such as oil leads to the emission of carbon dioxide, a major cause of global warming, and the search for alternative sources of energy is thus a matter of some urgency. The use of clean, renewable energy sources such as solar power would reduce demand for gas or for electric power generated by conventional methods, effectively resulting in energy conservation. This process can be termed "energy creation," and Daiwa House has contributed to this by developing 4 photovoltaic power generation systems adaptable to various roofing materials and roof shapes.

##### Countermeasures against environmental pollutants

We have carefully examined all chemicals contained in construction materials to assess their impact on the human body and the environment in general, and are implementing countermeasures. A particularly urgent issue is the reduction or elimination of volatile organic compounds (VOCs) that can pollute the air inside homes. Daiwa House is taking measures to minimize the use of materials that contain harmful substances such as formaldehyde.

#### Office Buildings:

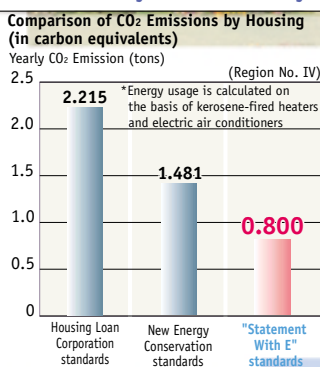
##### Reducing electric power loads

The Ice Thermal Storage Air-Conditioning System that Daiwa House has installed at its head office building in Osaka utilizes electricity at nighttime, when the power load is low, to produce ice, which is then used for air-conditioning during the day. This allows a reduction in power consumption during the daytime peak-demand period. The building is also fitted with a gas co-generation system consisting of an electricity generator powered by a gas turbine engine whose exhaust heat is used to power the air-conditioning and supply hot water. This system supplies 55% of the heat and 50% of the electric power that the building uses per annum.

#### Statement with E

Houses conform to higher standards of health, comfort, and energy efficiency.

#### Comparison of Yearly CO<sub>2</sub> Emissions by Housing



#### Kankyo Kobo

Houses are equipped with solar generation systems that supply electricity and hot water, as well as organic garbage processors and rainwater collection systems.

#### Séjour RG Kankyo Shubo

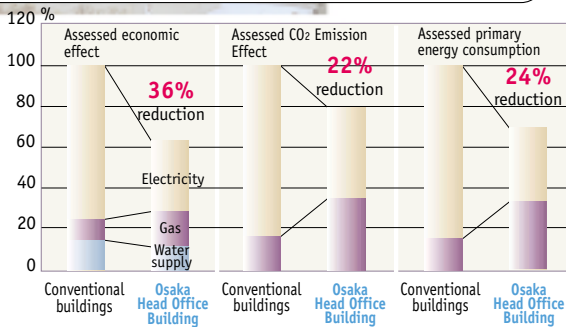
A new rental home that conforms to Next Generation Energy Conservation Standards, as houses are well insulated and thus save energy.



### Osaka Head Office Building

We have installed energy-efficient lighting, redesigned the configuration of light-switch circuits, and introduced sensor-controlled lighting to save electricity.

### Energy Conservation Effects



### Kibi Neopolis

Evergreen trees and seasonal flowers have been planted in parks and along streets near houses to allow residents to enjoy nature year-round.

### Waste recycling system

At the Company's head office, a system has been implemented to recover all waste for recycling as resources. All office desks are fitted with a "pocket" for waste paper to facilitate recycling. Other types of waste separated into categories and deposited at "recycling stations" located on each floor of the building. This system has been highly praised for its environmental contribution, and the head office received the Kinki Region's "New & Clean Office Environment Award."

### Housing Developments:

#### A completely barrier-free living environment

The Daiwa House Industry Group is engaged in the construction, in many locations throughout Japan, of environmentally friendly large-scale housing projects, such as the "Neopolis" suburban-type developments and the "Royal City Resort" housing developments, situated amidst wooded surroundings. Based on the principle of harmonizing with the natural environment, the preparation of the suburban-type development sites leaves the land in as natural a state as possible. During construction work, waste materials are re-used, and great effort is expended to ensure that the whole development is barrier-free. All this is part of the Group's commitment to creating natural and comfortable living environments.

#### Housing developments in harmony with nature

At the group's Eco Hills Kasugayama, in Joetsu City, Niigata Prefecture, the whole housing development is exclusively equipped with electric appliances, i.e., there are no gas appliances, and the hot water supply systems utilize surplus electric power generated at night. In addition, the Foundation for the Promotion of Energy Conservation in Housing, an organization affiliated with the Ministry of Construction, has awarded the "Daiwa House GE Type" house model a certification as an environmentally-friendly residence. We are also actively promoting the use of a low-noise garbage processing system in our new apartment buildings and single-family houses.

### Factories and Building Sites:

#### Promoting effective utilization of resources

Daiwa House is working to utilize resources as effectively as possible. This is being achieved via a three-pronged approach: (1) reducing the amount of waste materials generated at building sites, such as wrapping and packaging material, as well as scrap construction materials; (2) reusing materials that do not need reprocessing; and (3) using scrap construction materials to produce new materials. We aim to reduce waste at our plants as well as at construction sites to zero by the year 2005.

#### Reduction of pollutants

The Company is exerting considerable efforts to reduce the amounts of chemicals used in the production processes at its factories and the amounts of such chemicals emitted.