Takenaka's "Sustainable Works" 2005

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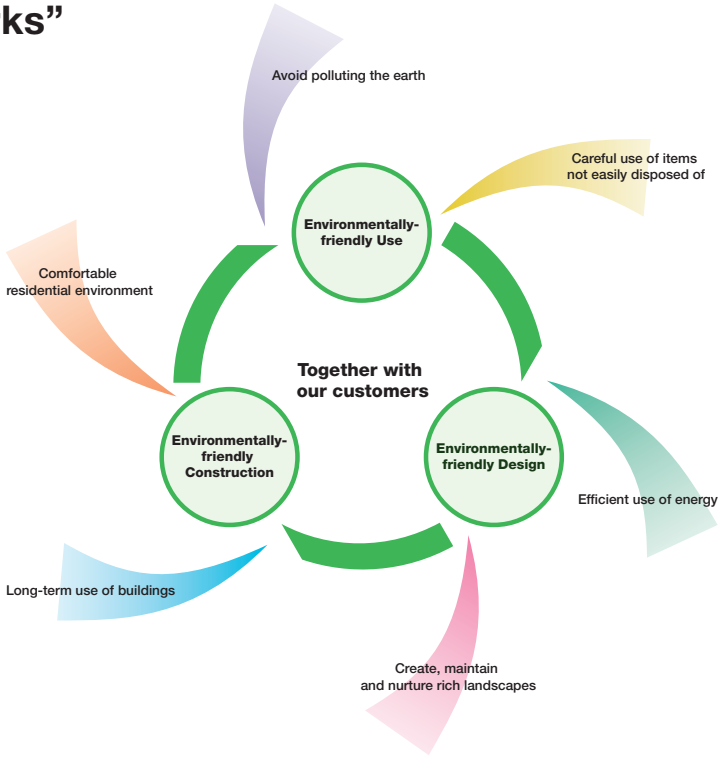
Takenaka Corporation launched a campaign named "Sustainable Works" aiming to construct sustainable buildings and housing together with customers, to create spaces in harmony with the environment. This will help create a sustainable society and rich environment for future generations. In partnership with our customers, we create sustainable buildings through environmentally-friendly use, environment-friendly design, and environmentally-friendly construction.



Environmentally-friendly Use

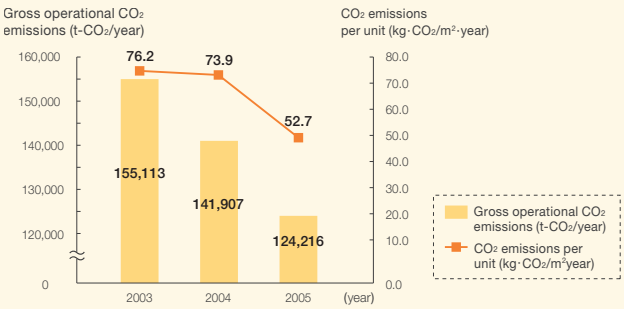
An examination of building life cycles reveals that buildings impose a far greater environmental load during use than during construction, and reducing this environmental load during operation and maintenance and extending the useful lives of standing buildings rather than tearing them down are thus key topics of interest.

Cutting-edge technology of retrofitting seismic isolation greatly improved safety in a great sacred hall

The Great Sacred Hall of Rissho Kosei-kai (Tokyo)

The seismic safety of buildings built under construction rules of 1980 and before is being reviewed. There are also growing needs for environmental-friendliness to reduce construction wastes by using existing buildings where possible. For this project, the seismic isolator bonding construction method was adopted. This method uses our earthquake-resistant retrofitting technologies, which have long been our expertise. The length of pillar cutting in this project was shortened to 40 centimeters, and by installing the isolator between the first floor and foundation, the building's interior could be used during the construction work. Upon completion, the seismic safety of the building was significantly improved.

Changes in operational CO_2 emissions



It has become essential to decrease a building's impact on the environment. When buildings we have designed and constructed in the last two years are used, the annual CO_2 emission is approximately 120,000 to 150,000 tons, a decline over previous years. In addition, CO_2 emissions per unit are being reduced further.

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Environmentally-friendly Design

The forms and functions of buildings, as well as various engineering aspects, are determined at the design stage in consultation with customers. It is extremely important at this stage to build in the optimal elemental technology and specifications to improve the environmental performance of buildings.

A shopping mall in harmony with the environment

The AEON Chikusa Shopping Center (Nagoya)

This project was the first "Ecostore" for AEON Co., Ltd., an environmentally-concious shopping mall. From the planning stage, we shared with the client the concept of the "Ecostore," which aims to reduce burdens on the environment, create an attractive commercial space in harmony with the community, and promote conservation methods that everyone can easily follow.

Proposals and adoptions of renewable energy

Types of renewable energy	Descriptions	Number of proposals	Number of adopted proposals
Natural energy	Solar power generation	16	8
	Solar heat utilization	2	0
	Wind power generation	4	1
Urban exhaust heat	Subway heat utilization	1	1
	Sewage heat utilization	1	1
Utilization of water resources	Rainwater utilization	12	6
	Recycle of wastewater	9	5
Others	Cogeneration	17	12
	Geothermal utilization	3	3
	Hot spring heat utilization	2	2
	Total	67	39

To help prevent global warming, clean renewable energy with lower CO_2 emissions should be used where possible. In FY 2005, we offered customers 67 proposals for renewable energy. Of these, 39 proposals were adopted in full, and many of the adopted ones included aspects of cogeneration. We look forward to more customers choosing projects incorporating renewable energy in the future.

Environmentally-friendly Construction

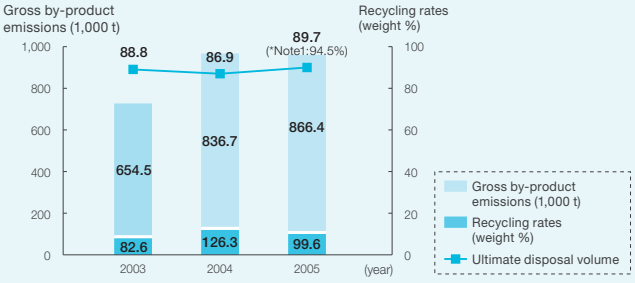
Construction work is by its nature single-item, on-site production at a building location. Steps must be taken in line with the type of project and the local community to reduce the environmental load of construction waste as well as the CO_2, noise, and particulate matter produced by heavy equipment and vehicles.

Reduction in use of South-Sea timber and the 3R campaign

A new construction of the NIPPO apartment building in Kamata 3-chome (Tokyo)

This project, located in Ohta Ward in Tokyo, involved constructing a new tower-type 20-story reinforced concrete apartment block. Deck plates were used as flooring frame for the lower stories, and hollow-core PCa flooring for upper standard stories, thus greatly reducing our use of South-Sea timber. Additionally, the 3R (reduce, reuse, and recycle) campaign was thoroughly followed at workshops, which culminated in receiving the 2005 Contributor to the 3R Campaign Promotion Award from the Minister of Land, Infrastructure, and Transportation.

Construction by-product emissions and recycling rates



We have been working to reduce CO_2 emissions as well as zero emissions (to curb emissions of construction by-products) during the construction phase. Though the total emission of construction by-products in 2005 was almost the same as in the previous year, we successfully reduced the ultimate disposal volume by raising recycling rates. The sorted collection of construction by-products at workshops has started to produce positive effects.

*Note 1: The recycling percentage is 94.5 percent, if the recycling rate of mixed wastes at intermediate treatment facilities is included.