

Comfortable Spaces and Services That Are Easy on People and the Environment

Safety, comfort and eco-friendliness—as the kinds of performance sought in homes and offices become increasingly sophisticated, the Mitsubishi Estate Group continues to leverage the knowledge, technology and expertise of its diverse companies to offer customers true value and make new styles of life and work possible.

Building Business Initiatives

The Kayabacho Project (tentative name)—simultaneously enhancing the productivity, comfort and environmental performance of office buildings

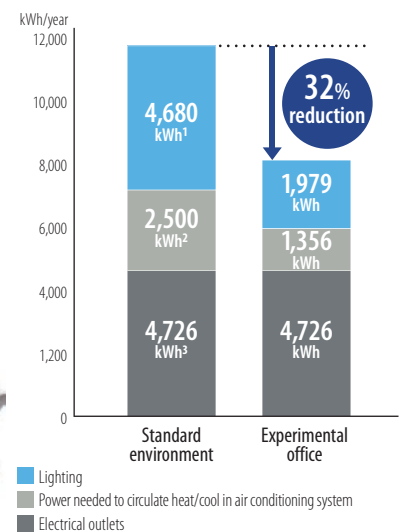
The OMY Council has established the OMY Environmental Vision as well as the Association for Creating Sustainability in Urban Development of the Otemachi, Marunouchi and Yurakucho District (the Ecozzeria Association) to realize it. Ecozzeria provides information on the environment and holds events. A part of its office in the Shin-Marunouchi Building is run as an experimental office for validation of the benefits of next-generation low-carbon technologies, and various cutting-edge technologies are being piloted there.

Experimental office for validation of the benefits of next-generation low-carbon technologies



Ecozzeria, a strategic environmental center

Annual electricity consumption in offices



- Standard lighting in the Shin-Marunouchi Building (two FHP 45 W fluorescent bulbs with 750 lux; used with daylight and without motion sensors)
- Statistic from the Energy Conservation Center, Japan (with reference to buildings in the same category as the Shin-Marunouchi Building, which use district cooling and heating and have a rentable ratio exceeding 60%)
- Power consumption from electrical outlets is not compared to other targets; same value as actual usage in the experimental office is used.

Office proves that power consumption can be reduced by 32%

Offices in the future will have to reduce energy consumption much more than they have in the past. However, as centers of knowledge production, offices cannot go without the air conditioning and lighting that sustain comfort. An experimental office for validation of the benefits of next-generation low-carbon technologies was opened in the Shin-Marunouchi Building in October 2009 to answer the question of how extensively energy consumption could be reduced while actually enhancing comfort.

In the experiment, steps were taken to reduce the energy used in lighting and air conditioning, which account for about 60% of energy consumption. An LED smart lighting system, capable of adjusting brightness, intensity and light color to enhance comfort, and a radiant air conditioning system, which uses thermal radiation from the walls, were introduced together for the first time in the world.



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LED smart lighting system

Individual task lights can be set at the preferred illumination level and color temperature. Moreover, overall office lighting is switched on and off using a motion sensor. In addition, both illumination level and color temperature can be automatically controlled by time of day.

Hybrid radiant air conditioning system

This system involves directing cold or hot water to the ceiling to achieve combined use of thermal radiation, which enables heat transfer between the ceiling and the human body, with a thermal storage system, which enables storage of cold thermal energy in the building structure at night, when the air conditioning load is low, and discharges coolness gradually into the rooms during the day.

Kayabacho Project (tentative name)



Two-story natural ventilation system spans each floor

Each floor is naturally ventilated with an efficient airflow system using two-story halls.



High performance exterior controls heat load

Glass with excellent external thermal insulation performance is used. The "eco-grid" louvers installed on the façade interrupt the sunlight to control sunlight within the office.

The roughly 15-month experiment showed that, compared to standard equipment, energy consumption could be reduced about 60% for lighting, 40% for cooling and heating, and 32% for the office overall. Moreover, the LED lighting optimized the lighting to suit the work scene, enhancing intellectual productivity. The radiant air conditioning system was highly praised as it did not blow cold or hot air and provided a consistent, gentle warmth that made workers feel that the entire office was bathed in sunlight as well as a cooling sensation reminiscent of being in a tunnel. These results are very encouraging as practical applications.

as well as thermal storage systems which use the building itself as the cooling storage medium, efficient natural ventilation systems, and glass with particularly efficient exterior thermal insulation.

A 45% reduction in energy use is an ambitious target, but this building will appeal to tenants not only because of its impressive environmental performance, but also due to its potential to provide a more comfortable office environment. In another advancement, this new building will provide ideal office space for the cutting-edge business trend that seeks to integrate "individual creativity" with "collaborative creativity."

Supporting more sustainable and creative work styles

Based on the results of the experiments, Mitsubishi Estate launched the Kayabacho Project (tentative name) in June 2012 as the first step in these technologies' practical application. This construction project will create a building for tenants in Chuo Ward, Tokyo, attempting to reduce energy use by approximately 45% (CO₂ equivalent) compared to general office buildings. This will be done by installing cutting-edge environmental technology such as LED smart lighting systems and hybrid radiant air conditioning systems,

Utilizing tenant companies' opinions to shape new developments

The building is to be completed in May 2013, but the larger objective is to further increase the number of our office buildings that offer this kind of superior productivity, comfort and environmental performance.

Toward this end, we plan to ask for the cooperation of tenant companies and use their opinions in improving facilities and devising innovations in building administration. This expertise will also be adopted in the designs of future buildings.

Close Up

Inauguration of the Marunouchi Eiraku Building: Cutting-edge environmental, emergency preparedness and urban functions

The Marunouchi Eiraku Building opened on April 1, 2012. Located where Marunouchi and Otemachi meet in the heart of Tokyo, it is an international business center featuring the latest emergency preparedness, environmental performance and urban functions.

Emergency preparedness The building is 1.5 times* more earthquake-resistant than typical ultra-high-rise buildings, thanks to a design based on Mitsubishi Estate's own standards, and is also equipped with an emergency power generator and a well. A space for helicopters to land for emergency relief has also been provided.

* An ultra-high rise building whose major structural parts will not suffer major damage and can continue to be used in the event of external force equivalent to an earthquake with a seismic intensity of a strong six as stipulated in the Building Standards Act (notification).

Environment The building uses large-scale solar panels with a maximum generation capacity of 100 kWh as well as LED lighting. A wall greening system has also been adopted. The building has been certified by Japan's Ministry of Land, Infrastructure, Transport and Tourism as a model project in the reduction of CO₂ emissions.



Urban functions The basement floor of the commercial zone, named "iyo!!," brings together restaurants that highlight "safety and security," "local food for local consumption" and "local traditions and food culture." The second nursery school in the Marunouchi area to obtain Tokyo Metropolitan Government certification is also located in the building.



Residential Business Initiatives

Pursuing lifetime value for customers leveraging the Group's value chain

New member organization aimed at improving customer loyalty

"Pursuing lifetime value for customers" is one of the goals in the medium-term business plan that the Mitsubishi Estate Group announced in June 2011. This means continuing to enhance customer value while building relationships with individual customers that last a lifetime. To achieve this, we must offer high-quality products and services using an integrated manufacturing, sales and management system that makes the most of the Group's value chain.

For customers, a whole new life begins when they move into their new condominium or single-unit dwelling. Understanding this, we strive to keep meeting customers' occasional needs for maintenance and renovations long after they move in. Pursuing these initiatives drawing on the strengths of the Group as a whole is a powerful way to increase customer loyalty. We aim for nothing short than winning a nation of "Mitsubishi Estate Group fans," people who love not only our condominiums and houses but also our commercial facilities and hotels.

The Mitsubishi Estate Residence Club that Mitsubishi Jisho Residence and Mitsubishi Jisho Community launched in October 2011 is one example of this effort. The Residence Club is a member organization for the approximately 190,000 families that are contracted to buy or currently live in one of the condominiums we sell and manage. Based on the theme "more options for an enjoyable lifestyle," customers under contract can use the club's website to check the status of construction, and residents can access helpful information about post-purchase services and learn more about the privileges of membership. By entering an ID and password, customers under contract and residents can access information specific to their own condominium. *Residence Club Magazine* is also published in conjunction with the website.



Top page of the Mitsubishi Estate Residence Club website

- Services for customers under contract
 - Report on status of building construction
 - Guide to various events before the move-in day
 - Information on preparing for the move
- Services for residents
 - Information on condominium management and post-purchase services
 - Consultation on room renovations
 - Sale of emergency preparedness products
- Common services
 - Preferential services offered by the Mitsubishi Estate Group companies (preferential lodging plans, discounts on Mitsubishi Ichigokan Museum tickets, etc.)
 - Information on special deals for members
 - Information on experience-based events

Organizing events and campaigns to build community among condominium residents

Japan's experience with the Great East Japan Earthquake reaffirmed the importance of a sense of community in condominiums. Mitsubishi Estate Residence Club has planned and developed various events facilitating communication between residents. Special tours of Mitsubishi Ichigokan Museum, cooking seminars, and the bus tours of the "Experience Nature" project, which give participants a chance to enjoy rice planting and vegetable harvesting (see pages 18–19), are held about once a month. These activities have been very successful in fostering deeper friendships among residents, even people from different condominiums. In May 2012, we held a special campaign to encourage community activities, in which we presented the first 200 applicants with a bottle of *junmai-shu* ("pure rice sake") named "Marunouchi" (see page 19) to enjoy during social gatherings or club activities at their condominiums. This campaign was planned in response to the many people who stated in a questionnaire that they wanted to participate in social gatherings at their condominiums.

We plan to augment the Mitsubishi Estate Residence Club's website with information unique to the Mitsubishi Estate Group as well as residential information to make the website even more useful. We will also utilize it more as a tool for interactive communication, for example reflecting the opinions of members compiled on the website in product planning. Moreover, the contact point for Mitsubishi Estate Renovations, a new initiative that Mitsubishi Estate Home and Mitsubishi Jisho Community launched in June 2012, will be set up on the website.

In all of these efforts, we hope that, by augmenting the website while strengthening affiliations among Group companies, the Mitsubishi Estate Residence Club will function as a B-to-C platform that links the Group together with its customers.



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Close Up 1

MEC eco LIFE Initiatives: Leading the way in eco-friendly, comfortable homes

MEC eco LIFE Co., Ltd. was established in December 2008 to pursue cutting-edge environmental performance in the Group's residential business. Beginning with *soleco*, a condominium system that combines a collective-access high-voltage power receiving system* with solar panels, the company has researched and proposed various cutting-edge solutions in the environmental field. This article introduces MEC eco LIFE's newest initiatives: *sumai LAB*, *sölev* and *soleco jozu*.

* A collective-access high-voltage power receiving system is a method in which electricity used by the condominium overall is received in bulk from a power supply company and then distributed to the individual units. Buying electricity for the entire condominium rather than for each individual unit keeps electricity costs down.

Website "sumai LAB" creates ideal homes based on customer opinions

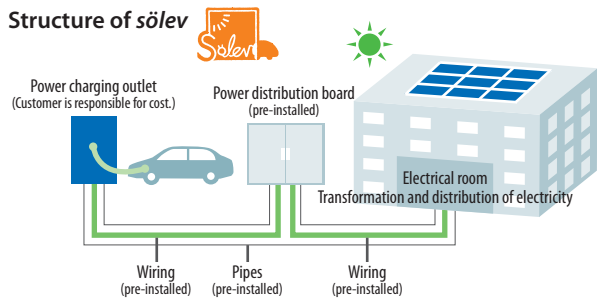
Sumai LAB is a website launched in November 2011 as a "research laboratory" aimed at engaging customers in working with us to develop new approaches to housing and creating products that reflect customer opinions. The interaction with customers on the website will lead to new proposals for the ideal homes of the future.



Sölev, a new system compatible with electric vehicles that enables users to set up battery chargers in individual parking spots

Sölev is a system that enables users to set up personal electrical outlets for charging electric vehicles in the parking lots of condominiums equipped with *soleco*. This alleviates the inconvenience associated with owning and using electric vehicles by keeping the construction costs borne by individual users low and providing a flat-rate system for usage.

Structure of sölev



Soleco jozu, a new hot water supply system using solar heat

This system heats water using solar energy absorbers installed on the roofs of condominiums. When installed on the roof of a nine-floor condominium with 32 units, gas consumption is reduced by 12–15% a year and CO₂ emissions are cut by 5,843 kg (our estimates). The warm water in the solar energy collector can also be used for daily use in the event of an emergency.



Artist's rendering of a condominium with *soleco jozu*

Close Up 2

Announcing Smart Everie, a zero-energy smart house

In April 2012, Mitsubishi Estate Home announced its "Smart Everie" home, which is based on the 2011 zero-energy home "Zero Everie." This smart house improves on environmental performance and ease of use for residents, and provides comfortable and efficient energy conservation. With enhanced thermal insulation and airtightness, the house delivers zero-energy

performance even with a conventional roof shape, and can thus accommodate a wide range of design requests.

In the model plan, cutting-edge equipment such as Aerotech¹ and original HEMS² which makes the home's energy use visible, create a home

in which residents can live for a long time while enjoying a more eco-friendly way of life. We will continue to take our smart houses to the next level to provide true comfort to residents.

1. Aerotech is a system that gives residents 24-hour control over ventilation, cooling and heating for the entire house with only a pair of indoor and exterior units.
2. HEMS stands for home energy management system.

Configuration of smart house system

