

Creating Eminently Livable Communities with Resiliency against Natural Disasters

The Great East Japan Earthquake and Tsunami of March 2011 put a sharp spotlight on the safety and security of Japan's cities and homes. The Mitsubishi Estate Group is responding with two approaches: independent efforts to improve its own systems and structures; and cooperative efforts with tenants and local governments.

Group-wide Initiatives

Further increasing disaster preparedness with cutting-edge ideas and technologies

For 80 years now, security and safety have been an integral part of our corporate culture

Mitsubishi Estate has a long history with disaster measures, starting in 1923 at the time of the Great Kanto Earthquake with the drinking water and hot meals we provided to people in and around the former Marunouchi Building and the emergency medical clinics we set up to help the injured. Since then, Mitsubishi Estate has held comprehensive disaster drills every September for over 80 years, with the participation of many people from around the Group.

The Marunouchi area—the Mitsubishi Estate Group's base—did not suffer significant damage in the recent Great East Japan Earthquake, and the internal broadcasts and emergency building safety checks immediately after the earthquake as well as measures to help people unable to return home all proceeded according to plan. I think that this can be attributed to the integral role that safety and security plays in our corporate culture, as well as our history of persistently taking measures.

A good example of this was our prompt response to people who had difficulties returning home. An emergency disaster process automatically goes into effect after an earthquake exceeding a weak six on the *shindo* seismic intensity scale. The earthquake was a strong five in Tokyo, but the official

on site made his own assessment based on the shaking and the appearance of the people gathered in the building and decided to take steps just as if the emergency process had gone into effect. The personnel at each building also proceeded with steps to assist at their own discretion and prior to receiving formal instructions—for example, plastic sheets were laid



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Disaster drill

down in the common spaces on the ground floor, and the people who had gathered from the surrounding areas were offered a place to rest. This demonstrated the high level of awareness that is customary to the Group.

Reinforcing disaster preparedness for even greater safety and security

Of course, since this was a disaster on an unprecedented scale, there were many challenges and lessons to be learned. For example, Tokyo and Sendai were not able to communicate for a prolonged period, so the Group moved to augment its communication system with new alternative communication devices. The Group also brought in power generators that could operate for 72 hours for future emergencies. In addition, we recognized the need to update our emergency internal broadcasts so that they are given in several languages.

In addition to these initiatives, we will continuously strengthen our disaster preparedness training. In fiscal 2011, we conducted a comprehensive inspection of our systems and structures, including the way Group companies cooperate. We also designated a back-up site for the headquarter building's disaster response office, set up a mobile unit and carried out a simulation training. In March 2012, we carried out training on communication, such as the compilation and organization of information on the status of the disaster from Group companies as well as safety confirmation. We ensured that the simulation training involved a greater sense of urgency, for example not notifying participants of the scenario in advance so that they had to make on-the-spot decisions.

Upgrading the BCP in light of experiences with the Great East Japan Earthquake

We are utilizing our experiences with the earthquake and what we learned via subsequent training sessions to revise the Framework of Anti-disaster Measures, a disaster prevention manual, and upgrade the business continuity plan (BCP). The Group devised the Mitsubishi Estate Group's Business Continuity Guidelines in October 2006 and the Emergency Response Manual, which addresses emergency situations in general, in April 2009, and has revised these documents to reinforce safety and security. However, learning from this earthquake, the Group decided to prepare a detailed BCP for each business group.

The Risk Management Committee is now overseeing the revision and augmentation of the BCP in line with our experiences in the Great East Japan Earthquake.



"Never forget March 11"—building safer communities

I believe that we must never forget the Great East Japan Earthquake. This awareness will ensure that we continuously strengthen the Mitsubishi Estate Group's Disaster Measures. Continuing with reviews of disaster countermeasures is one way we can live up to the hopes and expectations of the people who suffered in the earthquake and others.

As a way to coalesce these hopes, the Group designated last March as a month dedicated to strengthening safety and security. This year, we implemented a safety and security program in Marunouchi, holding a disaster prevention exhibition, a symposium and drills, among other events. We plan to continue doing all we can, driven by the conviction that safety and security are the very foundation of the Mitsubishi Estate Group's ability to create value.

Safety and security program in Marunouchi

● Exhibition

An exhibition was held with cooperation from the local fire department to demonstrate the emergency preparedness of the Marunouchi area, with presentations of seismic control devices, emergency toilets, and a film about the Tokyo Fire Department's efforts following last year's earthquake.



Visitors were invited to write down what they could do in the event of a disaster, thus showing that we can come together and create a safe and secure community.

● Symposium featuring the head of the Tokyo Fire Department's Hyper Rescue Unit

The head of the Tokyo Fire Department's Hyper Rescue Unit, which participated in the water injection work at Tokyo Electric Power Company's Fukushima Daiichi nuclear plant, gave a talk.



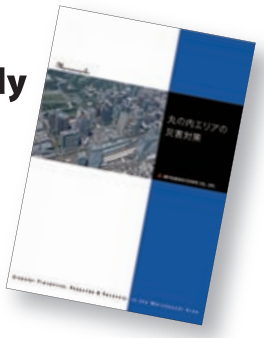
● Demonstration of lifesaving and emergency aid activities

A simulation was presented on how to use an automated external defibrillator (AED) when a person suddenly collapses, and on the process from the point at which the person on the scene uses AED until the rescue team takes over.



Building Business Initiatives—1

Preparing for disasters by providing even stronger buildings and helping people feel ready



Publication of Disaster Prevention, Response and Recovery in the Marunouchi Area

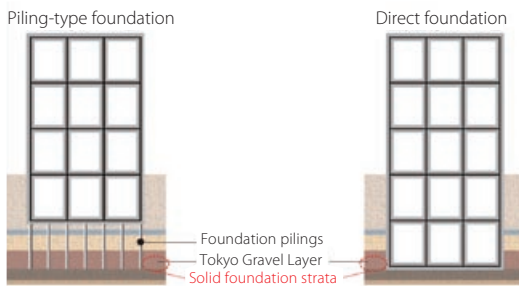
In November 2011, Mitsubishi Estate issued the pamphlet *Disaster Prevention, Response and Recovery in the Marunouchi Area*, which lays out disaster countermeasures taken in the Marunouchi area (Otemachi, Marunouchi and Yurakucho) by area management. The pamphlet introduces buildings’

aseismic capacity and their disaster prevention equipment, measures to prevent water damage, the emergency power supply and the disaster preparedness system. This section features some of these measures.

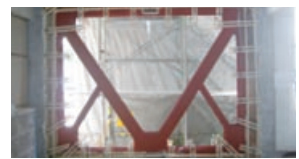
Providing even stronger buildings

Stable foundation

The buildings the Group owns in the Marunouchi area are supported on a very stable stratum known as the “Tokyo Gravel Layer” (over 20 m deep). Buildings are structured with foundation pilings that reach this supporting layer or a building foundation that directly rests on it.



Beam and column reinforcement



Additional wall construction/retrofitting

Strict design standards

All of the buildings in the Marunouchi area owned by the Group have aseismic capacity that is equivalent to or exceeds the standards specified in the revised 1981 seismic design code.

Moreover, the current laws do not define standards for earthquakes equivalent to level seven on the *shindo* seismic intensity scale, such as the Great Hanshin–Awaji Earthquake, so Mitsubishi Estate worked with Mitsubishi Jisho Sekkei, an architectural design company, to devise its internal safety standards, Building Safety Design Guidelines, which go beyond the current laws and industry organizations’ voluntary standards. These standards are applied to the Marunouchi Building (completed in 2002) and other super high-rise buildings completed since then. In addition, since long-period seismic ground motion with long seismic cycles can shake super high-rise structures violently even at great distances from the seismic center, super high-rise buildings since the Marunouchi Building have been equipped with seismic control devices.

Reinforcement work carried out

Buildings that were constructed prior to 1981, when Japan’s seismic design code was revised, have undergone extensive seismic retrofitting including the installation of additional load-bearing walls, wall reinforcement, and beam/column reinforcement to secure a satisfactory level of seismic performance. In addition, other measures such as the application of a safety film to exterior window glass to prevent falling glass fragments have also been implemented.



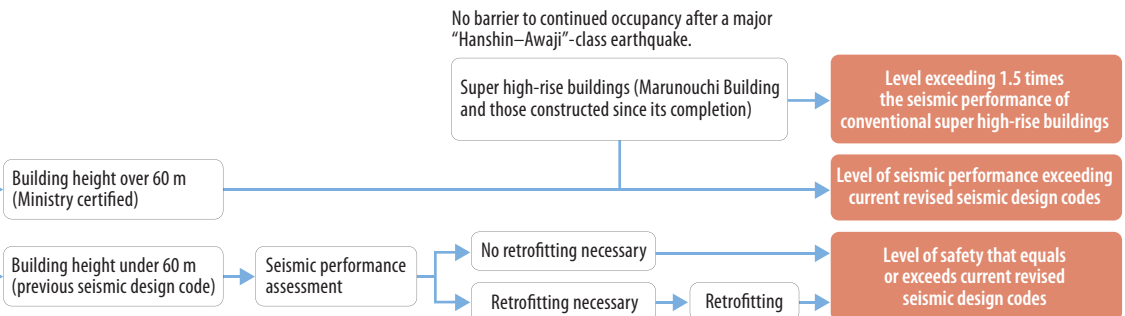
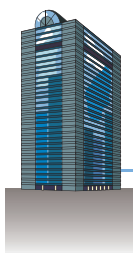
Beam and column reinforcement



Examples of seismic damping devices (left: brace type; right: wall type)

Reinforcing earthquake resistance in buildings

Buildings owned by Mitsubishi Estate*



* Buildings in operation as of October 2011

Helping people feel ready and calm, even when disasters strike

Establishing an emergency disaster system

In line with the Framework of Anti-disaster Measures, the Mitsubishi Estate Group set up a disaster response office to deal with emergency disasters. In the event of an earthquake greater than a weak six on the *shindo* seismic intensity scale striking the central three wards of Tokyo, our BCP and the disaster management organization are automatically activated. The Disaster Management headquarters is immediately established and employees from the relevant group companies undertake the following response activities.

● **Assessment of building damage risks:** In the event of an earthquake, technicians from Mitsubishi Estate, Mitsubishi Estate Building Management, Mitsubishi Jisho Property Management and Mitsubishi Jisho Sekkei will promptly carry out emergency safety checks and provide technical support, including preserving and repairing building facilities.

● **Emergency repairs enabling tenants to continue their businesses:** Group companies as well as building maintenance/repair companies and other cooperating companies will work together to make emergency repairs promptly.

● **Support for visitors and evacuees:** In addition to providing support for those who face difficulty returning home, the system is ready to provide first-aid treatment for injured persons in the buildings.



Support for those unable to return home

Emergency stores of food, drinking water and supplies

Emergency provisions include not only emergency food and water, but also medical supplies, daily necessities, various tools and even bicycles with puncture-proof tires.



Emergency food supplies



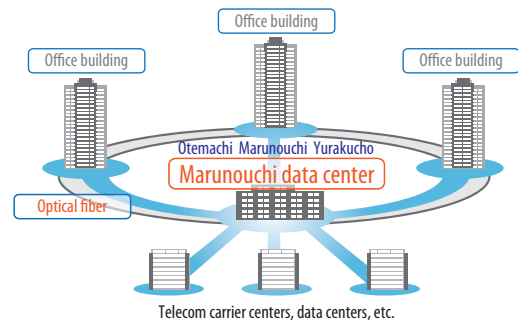
Sewage and water pumping facilities for emergency disasters

Upgrading energy and communication infrastructure

All buildings are equipped with emergency power generators. Moreover, buildings to be developed in the future will have emergency power generators that not only use conventional Class-A heavy fuel oil but also take advantage of the very stable supply of city gas supplied at intermediate pressure. At the same time, the Marunouchi Data Center, located in the Marunouchi area, is equipped with emergency power generators and uninterruptible power supply (UPS).



Emergency power generators



Providing latest information

The 80 Marunouchi Vision screens throughout the Marunouchi area will immediately switch to the NHK broadcast in the event of a disaster, providing information to visitors and persons who face difficulty returning home.



Marunouchi Vision

Close Up

Capitalizing on the unique characteristics of facilities, such as commercial facilities and hotels

At commercial facilities: New action guidelines devised

Mitsubishi Jisho Retail Property Management, which runs commercial facilities in major cities throughout Japan, had previously devised firefighting plans corresponding to the specific characteristics of each facility and region. The Activity Guidelines for Major Earthquakes were established in November 2011 based on experiences with the Great East Japan Earthquake. These guidelines lay out the standards for taking in people unable to return home, criteria for determining whether operations can continue at the facilities, and standards for the amount of supplies to be laid in at the facilities.



Disaster drill

At hotels: Disaster drills carried out once a week

It is difficult to hold company-wide disaster drills at hotels, where the accommodations department works with the banquet department and other departments to provide services to customers 24 hours a day for 365 days a year. The Royal Park Hotel (Chuo Ward, Tokyo) meets this challenge by changing the site and situation of the disaster scenario in every drill and carrying out disaster drills once a week in each department. Employees have also joined the Workplace Firefighting Drill Contest conducted by Chuo Ward every year, achieving impressive results.



Evacuation drill

Building Business Initiatives—2

Working with people in the community to enhance overall security

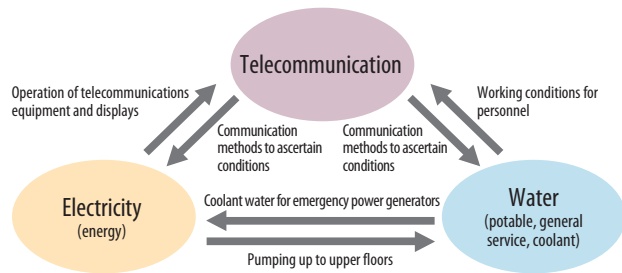
Participating in emergency preparedness activities in the Otemachi, Marunouchi and Yurakucho district

In order to protect the people working in the buildings we own and the visitors to the area in the event of a large-scale disaster, we need a cooperative system in which our corporate tenants, owners of nearby buildings, and local governments work together on emergency preparedness and recovery efforts. The Otemachi, Marunouchi and Yurakucho district, where Mitsubishi Estate Group owns many buildings, is one of Japan's preeminent business centers with 4,000 businesses employing approximately 230,000 people. This makes it all the more vital for us to secure business continuity.

Given this, the Group works with other companies in the district to set themes every year and considers local disaster measures through the Council for the Area Development and Management of the Otemachi, Marunouchi, and Yurakucho (OMY Council), whose members represent the owner companies and organizations in the Otemachi, Marunouchi and Yurakucho district. In fiscal 2011, an exploratory committee was formed with participation from academics and government administrators. The committee discussed measures to assist people who cannot get home after a disaster and measures to help the district continue business operations in the event of a disaster.

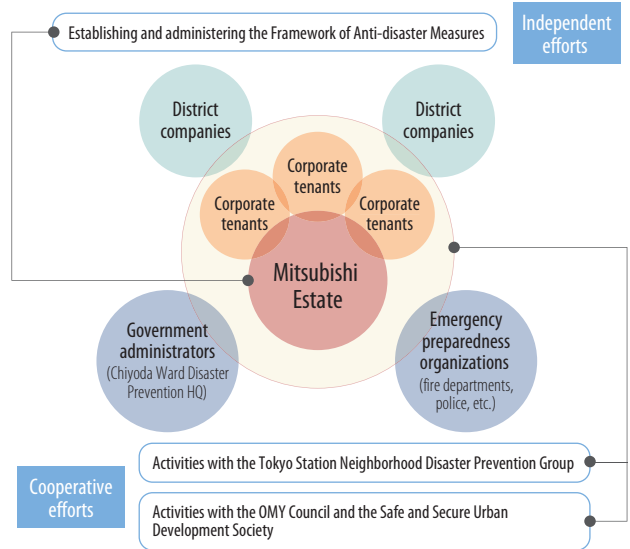
Through the OMY Council, the Group is working with companies in the district on ways to create an Otemachi, Marunouchi and Yurakucho Business Continuity District (BCD) and "urban smart city."

Maintaining functions of core infrastructure



In discussions over the business continuity district concept, electricity (energy), water and telecommunications were defined as the three core types of infrastructure needed to prevent the interruption of operations in the district.

Emergency preparedness system for Otemachi, Marunouchi and Yurakucho district



Public-private partnerships for urban development

The Mitsubishi Estate Group carries out emergency preparedness measures in collaboration with government administrators and companies in the Otemachi, Marunouchi and Yurakucho district, where the daytime population is very high.

One example is participation in the neighborhood corporate association, Tokyo Station Neighborhood Disaster Prevention Group. Formed by local businesses in 2004, the association works closely with Chiyoda Ward and implements steps to enhance disaster preparedness in the district. The Group participates in and cooperates with disaster preparedness activities and drills on providing support for stranded people in an event of a disaster.

Mitsubishi Estate also participates in the Advisory Committee on Otemachi–Marunouchi–Yurakucho Area Development. Formed in 1996 by the OMY Council, Tokyo Metropolitan Government, Chiyoda Ward and East Japan Railway Company, the Advisory Committee is carrying out comprehensive urban development, from the construction of individual buildings to infrastructure development, emergency preparedness and crime prevention activities, as well as public space and sidewalk maintenance. In the year 2000, the Advisory Committee established a future vision, rules and methods for the community in its City-planning Guidelines, approved by the public-private partnership.

The Group aspires to utilize the knowledge and expertise it has acquired in various activities to work with many people in offering the safety, security and other values that the Otemachi, Marunouchi and Yurakucho district is so uniquely positioned to offer, and thereby to further enhance the community's appeal.



Residential Business Initiatives

The Parkhouse brand—continuing to offer a safe, secure and comfortable lifestyle

Reinforcing the proprietary Check Eyes system for emergency preparedness

The livability of the condominiums that Mitsubishi Jisho Residence had sold was not significantly impaired in the Great East Japan Earthquake on March 11, 2011. This demonstrated that The Parkhouse brand's structural design standards and facility design standards, which had been based on the existing Check Eyes system (see page 28), had been effective. Still, the Group released a press release on August 30, 2011, explaining its new policy designed to further reinforce its emergency preparedness standards in terms of both infrastructure and facilities and their operation in order to provide customers with peace of mind and a lifestyle that is even more resilient in the face of disasters.

This policy is our promise that the residences of The Parkhouse brand are designed with safety and seismic capacity in mind, that our emergency preparedness manual and other materials will give residents familiarity with the procedures to take to protect themselves in the event of a disaster, that emergency preparedness supplies are stockpiled, and that we will propose a structure that will enable residents to work together with the management association in the lead to quickly form a community.

On the infrastructure and facility side, Mitsubishi Jisho Residence includes as standard equipment front doors with earthquake-resistant frames that prevent the doors from becoming stuck due to deformation in an earthquake, earthquake-resistant latches, security lighting in the hall ways of each unit which can also be used as emergency flashlights, and P wave sensors in elevators. These emergency features come standard in all buildings and have been described in the Check Eyes Book, a book that describes housing performance and the basic specifications of each building. Going further, all projects with design start dates in or after October 2011 will have an emergency storehouse, a manhole toilet, emergency water supply (emergency purification unit) and basic rescue tools as standard features.

We will continue to devise detailed measures for structural plans and equipment plans for each type of building, since the building's site characteristics and other conditions determine which aspects should be reinforced. In general buildings, a construction method suited to the conditions of the planned site's land is selected, while in high-rise buildings that meet certain conditions, an emergency power source is provided for shared areas. Super high-rise buildings adopt either seismic-isolation structures or seismic-damping structures, in principle, and the emergency power source for elevators and pumps for general water supply have longer operating times than that legally mandated. In addition, in buildings located in a coastal area, the basic conditions for high tides and tsunami for the adjacent seawall are displayed and measures taken to prevent liquefaction.

In terms of the operational side, we provide added descriptions tailored to each building in the Check Eyes Book regarding such topics as the site conditions, basic structure for planned buildings, and an outline of the emergency warehouse and supplies—the areas that have been reinforced.

Then, after the building is transferred to the new owner, the Emergency Preparedness Plan Proposal, a sample tailored to the property's size, will be given to the customer. This provides an example of a specific plan for the actions that the management association and residents should take in the event of natural disasters such as major earthquakes, typhoons and torrential rain or major fires. Based on this plan, the management association can implement disaster drills and identify and decide upon specific actions, the site for storing emergency supplies, and other specific relief and rescue details, while working closely with Mitsubishi Jisho Community Co., Ltd., the management company, and other service providers.

By upgrading our Check Eyes system, which provides information on building performance from the design stage through the construction, transfer and management stages, we will help the residents be prepared for disasters and live with peace of mind. We will continue to strive to ensure that The Parkhouse residents understand that their buildings are not only comfortable, but also safe and secure.



Hidenori Sato

General Manager, Product Design Office, Product Planning Department
Mitsubishi Jisho Residence Co., Ltd.

Emergency measures for The Parkhouse residences

