Tokyo Midtown

On the Green

Business Representative: Mitsui Fudosan Co., Ltd.

Concepts of Tokyo Midtown Development

With “on the green,” “diversity” and “hospitality” as the concepts for a large-scale urban redevelopment project of a planned area of approximately 10 hectares, urban development was conducted with careful consideration for “urban rejuvenation,” “sustainable, energy saving and resource saving” and “coexistence with the environment.”

Urban rejuvenation

With the aim of creating a complex city coupled with all the functions of work, life, play and rest, a town with diversified functions (diversity) was created by establishing facilities such as offices with high functionality, housing, a hotel, commercial facilities, parks and museums.

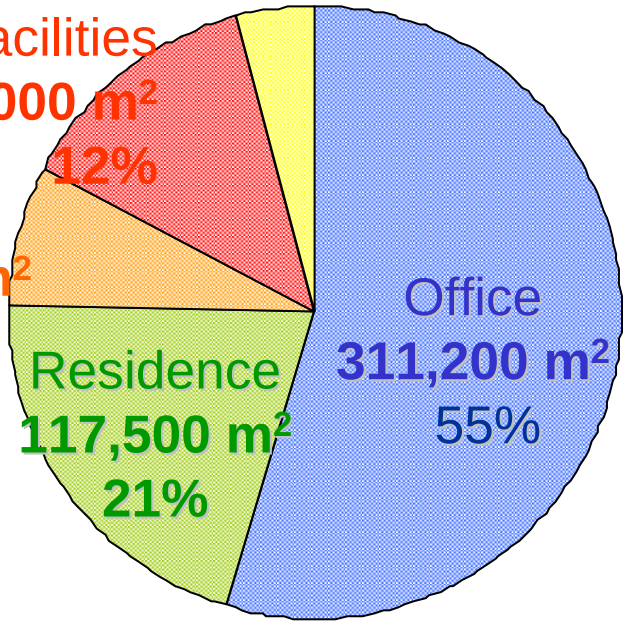
Sustainable, energy saving and resource saving

With an eye toward sustainable architecture, an energy- and resource-saving infrastructure system was constructed, aiming to create a low-carbon town with measures for long operating life as well as high functionality.

Coexistence with the environment

Measures to moderate the heat-island phenomenon were taken by arranging green areas throughout the town, in addition to an open green space of approximately 4 hectare combined with Hinokicho Park.

Tokyo Midtown Facility Composition Diagram



Gross floor area: 563,800 m²

Overview of the Tokyo Midtown Project

Facility Overview

Address	Within Akasaka 9-chome, Minato-ku, Tokyo	Composition of facilities (Total floor area)	
Urban planning	Akasaka 9-Chome District Redevelopment Plan	Office	Approx. 311,200 m2
Site area	Approx. 68,900 m^2	Residence	Approx. 117,500 m^2
Base floor area for calculating floor area ratio	Approx. 473,100 m^2	Hotel	Approx. 43,800 m^2
Floor-area ratio	670%	Commercial facilities	Approx. 71,000 m^2
Gross floor area	Approx. 563,800 m^2	Other	Approx. 20,400 m^2

Project history

Sep. 2001	General competitive bidding and a successful bidder was awarded
Jul . 2002	Designated as an emergency regeneration area
Oct. 2003	Relocation of existing trees was started
Mar. 2004	Designated as an important area of landscape
May 2004	Authorization as an urban renaissance project
May 2004	Start of construction
Mar. 2007	Grand opening

Consortium

◆The National Mutual Insurance Federation of Agricultural Cooperatives

◆Meiji Yasuda Life Insurance Company

◆Fukoku Mutual Life Insurance Company

◆Daido Life Insurance Company

◆Mitsui Fudosan Co., Ltd.

&EARTH

Carbon Dioxide Reduction

Water Environment Conservation

Hazardous Substances Reduction

Resource Saving and Waste reduction

Natural Environment Preservation and Utilization

Tokyo Midtown Environmental Policy

Following a development vision of “Japan Value,” the Tokyo Midtown site was carefully designed to express the unique value and sensibility of Japan as a beneficial green area in the center of the city that deepens and expands the environment of the city. The objective was to create an open urban landscape that exists in harmony with nature.

Tokyo Midtown vows to:

1. Together with Green

Protect and cultivate the environment to endow future generations with the greenery we have inherited and the greenery we create.

2. Together with Technology

Utilize energy as effectively as possible and in harmony with nature.

3. Together with Benevolence

Be friendly to the earth environment and provide a high-quality living environment.

4. Together with Everyone

Join with the neighborhood people and local communities and work together for the benefit of all.

5. Together with Society

Exemplify and promote thoughtfulness and compassion for the earth.

Environment Consideration Effect of Greenery

Together with Hinokicho Park, expansive open spaces as large as 4 hectares were developed as a green belt in the heart of the city

Green space is 2.7 x larger than during the previous land use (Defense Agency housing complex)

Defense Agency period

Tokyo Midtown

Relocation of Existing Trees

Some 140 camphor trees, cherry, and other trees which are approximately 30% of remaining high trees from the previous site were replanted within the new project site.

Town Greenery

< Rooftop Greenery >

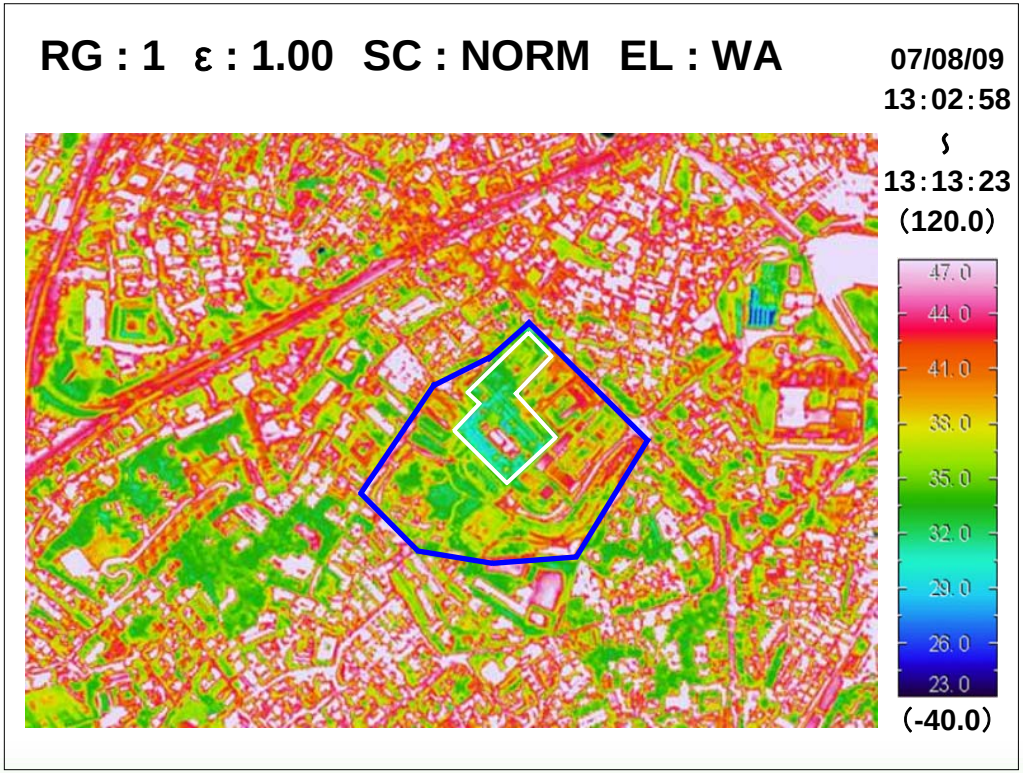
< Bamboos in the Galleria >

< Plaza >

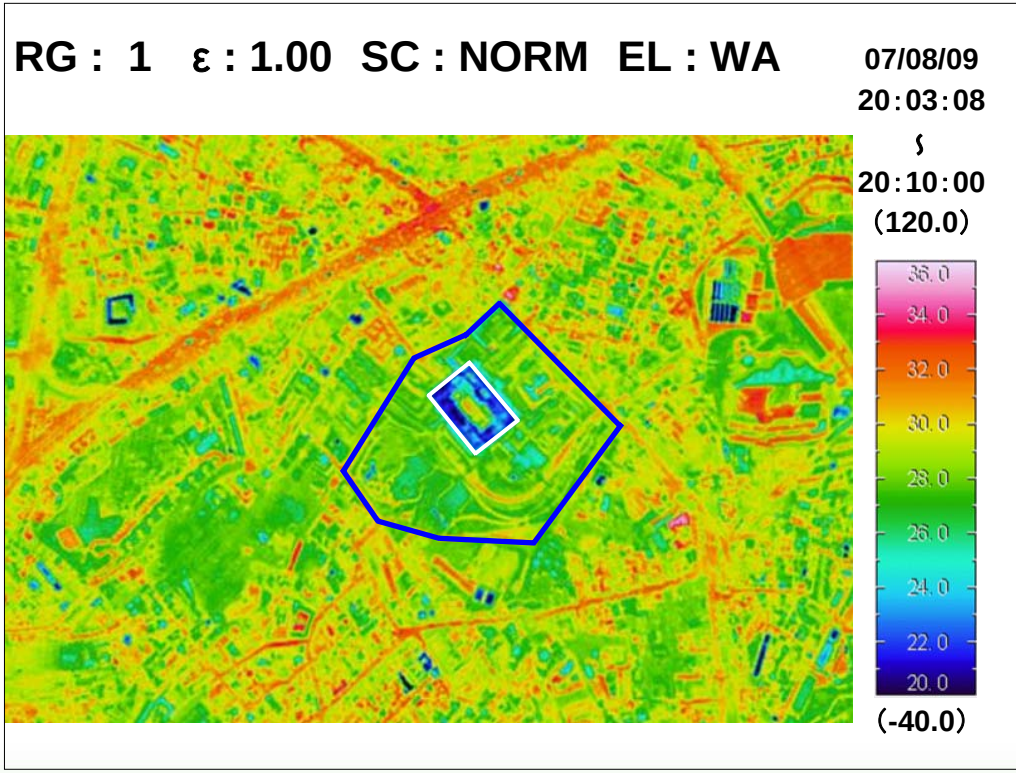
Precious Integrated Green Area in the Heart of the City

Thermographic Aerial View of Tokyo Midtown

[Day]



[Night]



* Within blue line: Tokyo Midtown Within white line: Excluded area (building roofs)

■Average ground surface temperature inside of 10-hectare area 38.6˚C

■ Average ground surface temperature outside of 10-hectare area 41.6 ˚C

Temperature difference 3˚C

■ Average ground surface temperature inside of 10-hectare area 27.9 ˚C

■ Average ground surface temperature outside of 10-hectare area 29.0 ˚C

Temperature difference 1˚C

Research: Nikken Sekkei Ltd. with the cooperation of Chiba University

Carbon Dioxide Reduction Effect by Trees

- CO_2 reduction effect by trees is approx. 450 kg-CO_2 per day.

= CO_2 breathed by approximately 1,700 people

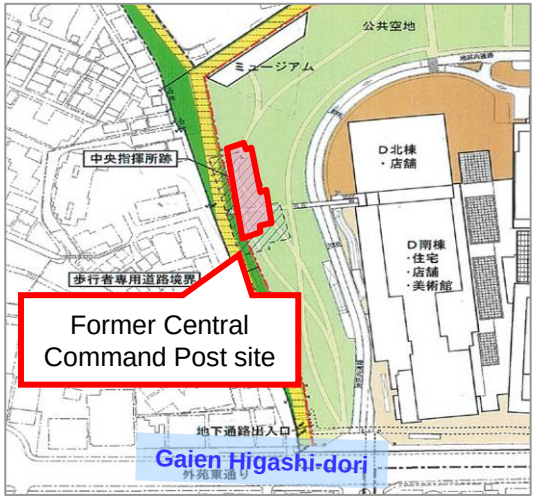
= CO_2 emissions of roughly 100 households

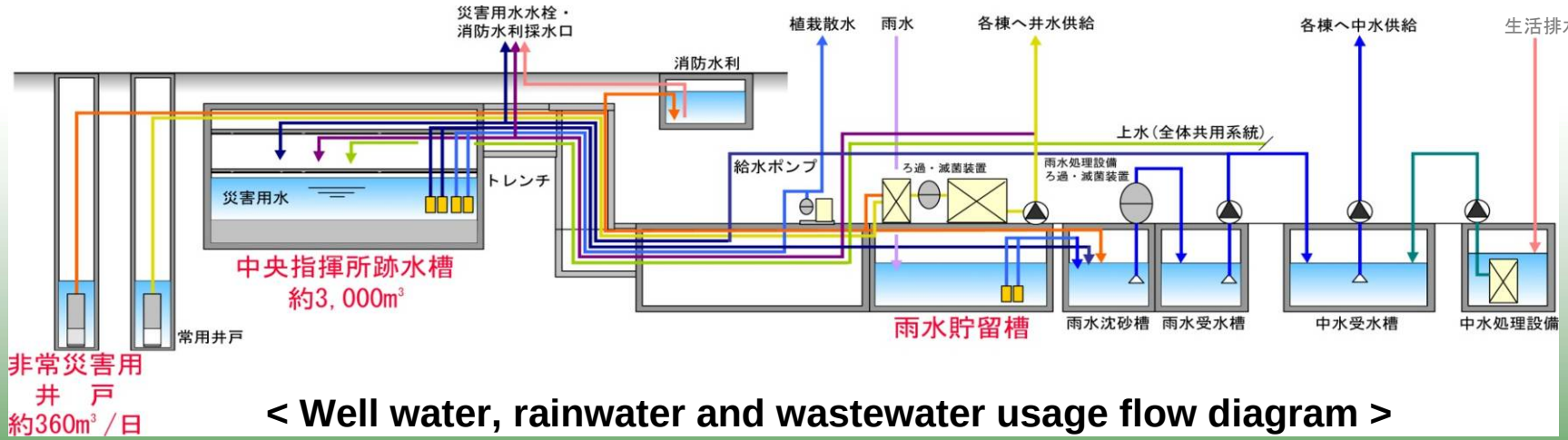
Recycling Water Resources

■ The underground structures of the Central Command Post of former Defense Agency complex has been reconstructed to serve as a water storage facility for use in emergencies. Together with well water for emergency disasters, Gray water collected and produced from rainwater and miscellaneous drainage can be used as emergency water.

Rainwater and miscellaneous drainage is treated and reused as gray water to rinse toilets and water outdoor plants. The use of recycled gray water reduces approximately 450m^3 water per day which leads to 25% reduction of clean water usage per year compared with all clean water usage.

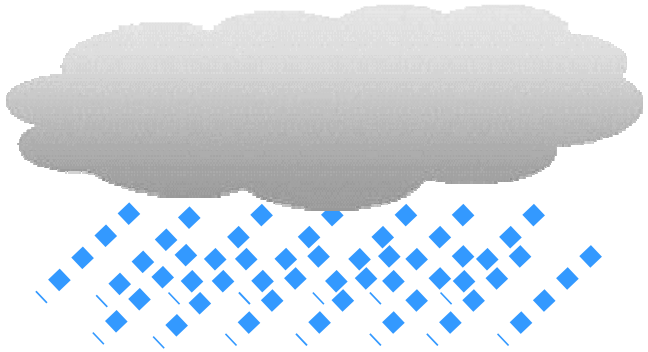
Use of gray water and rainwater recycling system produce water conservation effect for approximately 143,000 m^3 and 20,000 m^3 per year of gray water use and rainwater well water use respectively. Altogether they conserve water around 163,000 m^3 per year which is equivalent to the average amount of water used by 540 households since assumed regular water use per household is 300 m^3 per year.





< Well water, rainwater and wastewater usage flow diagram >

Recycling System of Rainwater and Wastewater



Rainwater

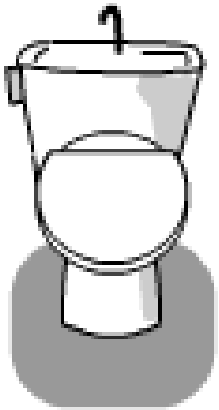
Miscellaneous drainage

Rainwater storage tank

Rainwater treatment facility

Water tank at the former Central Command Post

Watering for plants



Toilet rinse water

Gray water treatment facility

Gray water receiving tank

Sunlight Shielding Effect and Use of Natural Lighting

Sunshade Louvers

- ✓ Block direct sunlight
- ✓ By installing horizontal sunshades, sunlight is reflected and natural light is taken into the building
- ✓ The reduction rate of the perimeter annual load (PAL) on tower offices is approximately 16%

Skylight

- ✓ Natural light taken into the underground facilities saves daytime electric light energy
- ✓ Water from the upper surface of the skylights in the Plaza creates a water screen that contributes to reducing thermal load

< The design motif is traditional Japanese style architecture >

< Underground space with skylights >

Automated Blinds

Lighting control systems

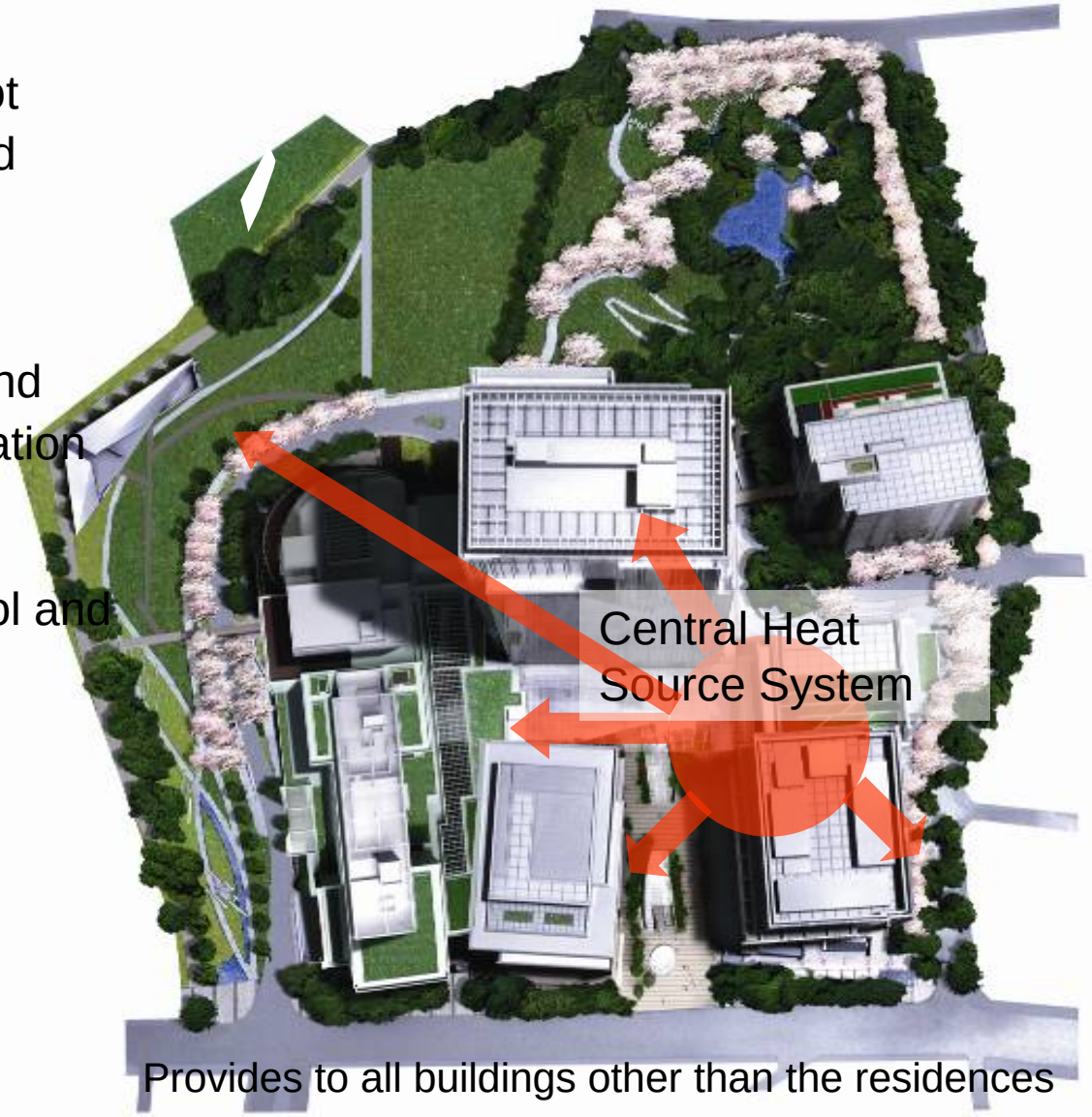
Ceramic Print

Construction of High-Efficiency Central Heat Source System

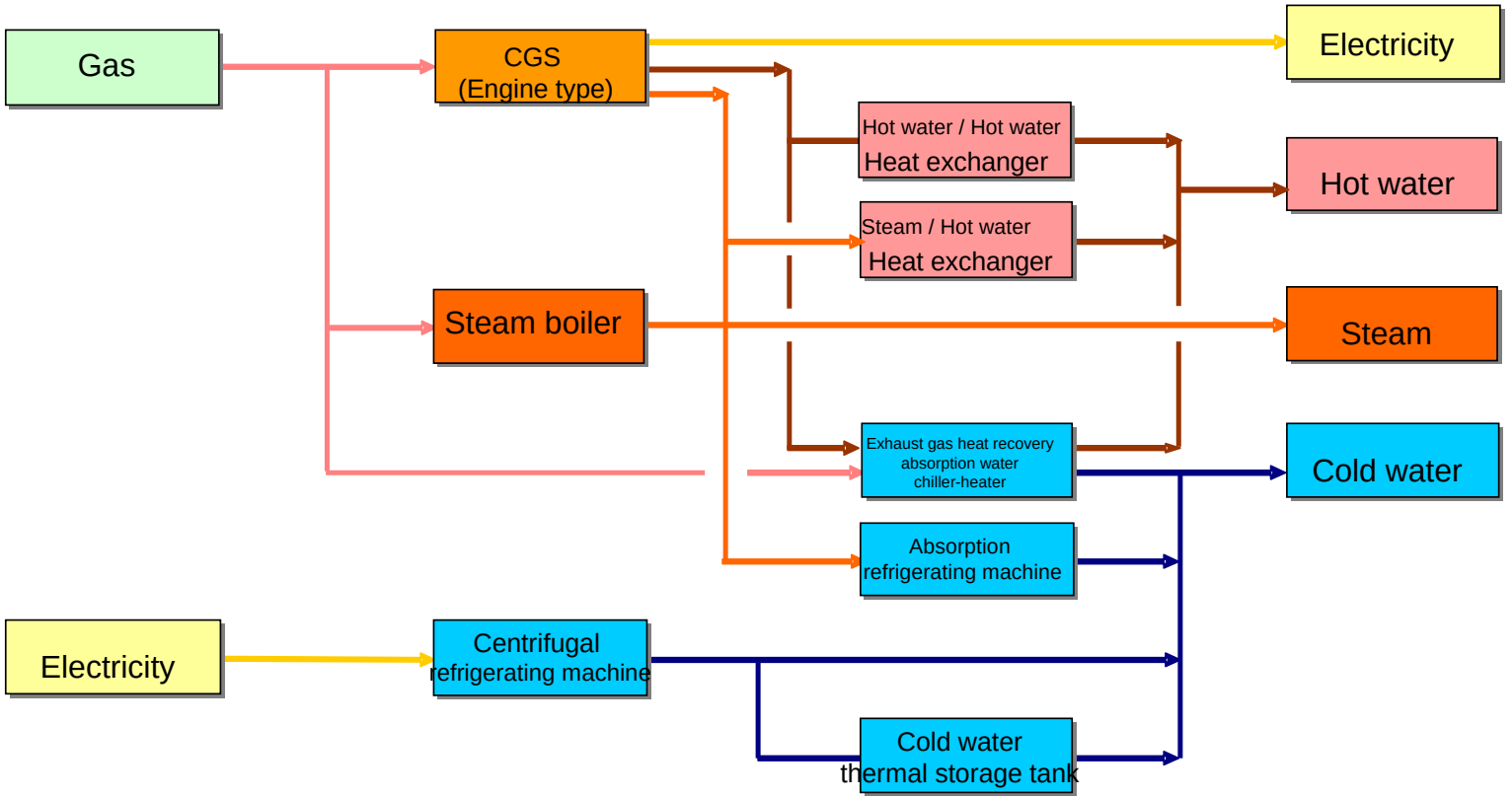
The plant is centrally located among the buildings to which hot water, cold water and steam is provided

Introduction of high-efficiency systems and temperature stratification thermal storage tank

Energy saving control and optimized operation



Conceptual scheme of the Heat Source System



- In view of reliability and economics, combined heat source system of electricity and gas is used
- Introduction of thermal storage tanks enables high-efficiency operation of heat source systems, leveling of electricity demand and use of low cost nighttime power
- Efficient use of exhaust heat by introduction of the cogeneration system
- For upper floors of offices and the hotel, steam is provided because it requires small conveyance power therefore beneficial for humidifying and hotel hot-water supply
- To lower floors, hot water is provided

Peak Shaving Effect and Leveling for Electricity Demand

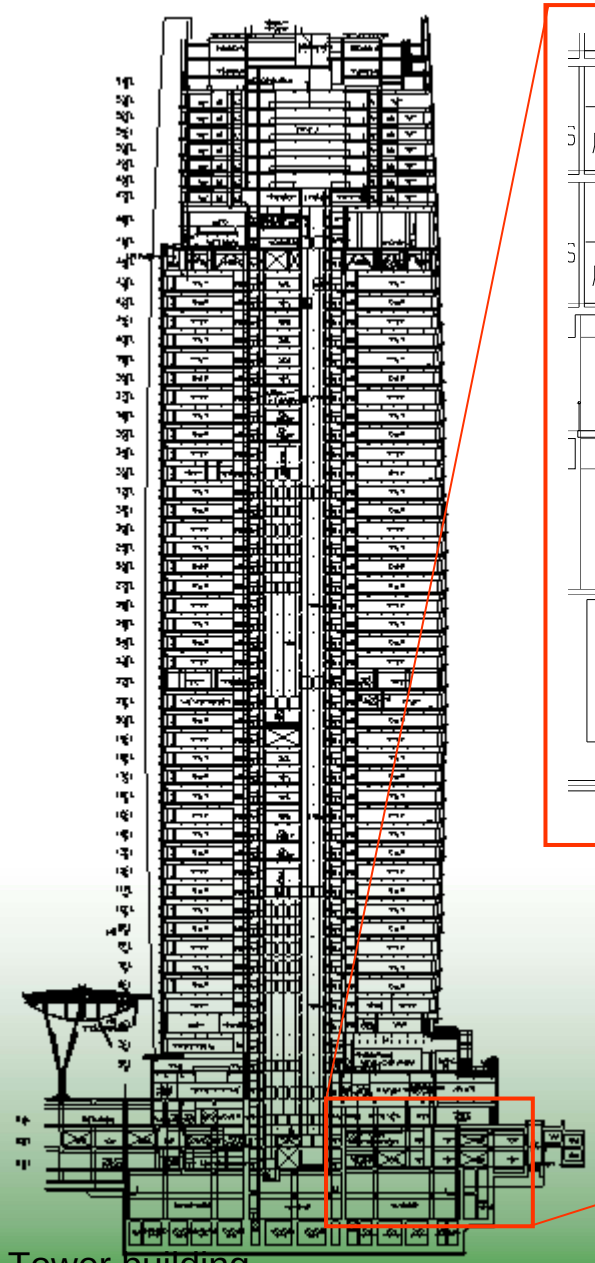
Reduce approx. 20% of assumed peak power

- ✓ Thermal storage system and NAS battery => Reduce daytime peak power and level electricity demand
- ✓ Cogeneration facilities and solar power generation are installed for in-house power generation
  => Reduce daytime peak power

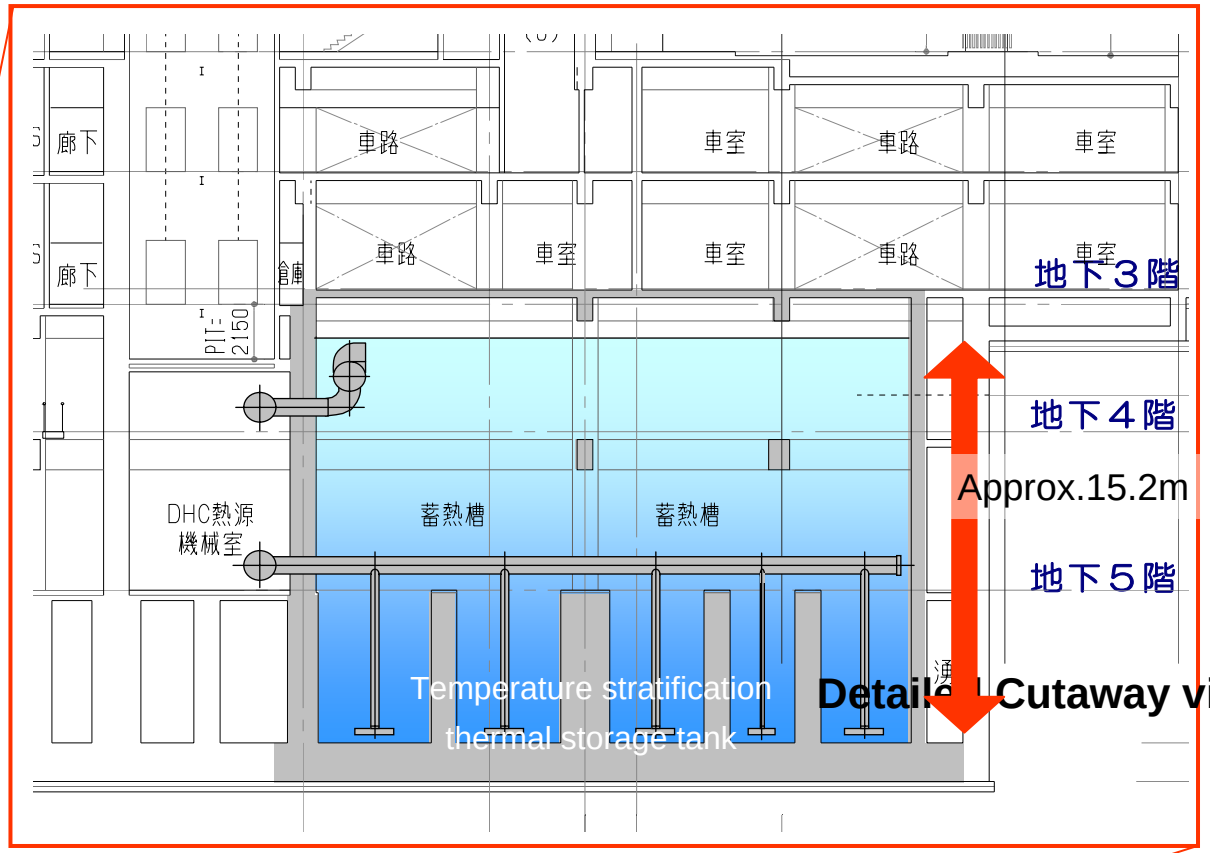
< NAS Battery >

< Cogeneration Systems >

Overview of the Cold Water Thermal Storage Tank



Tower building



Capacity of the tank: equivalent to 40,000 bathtubs (approx. 7,800m^3)

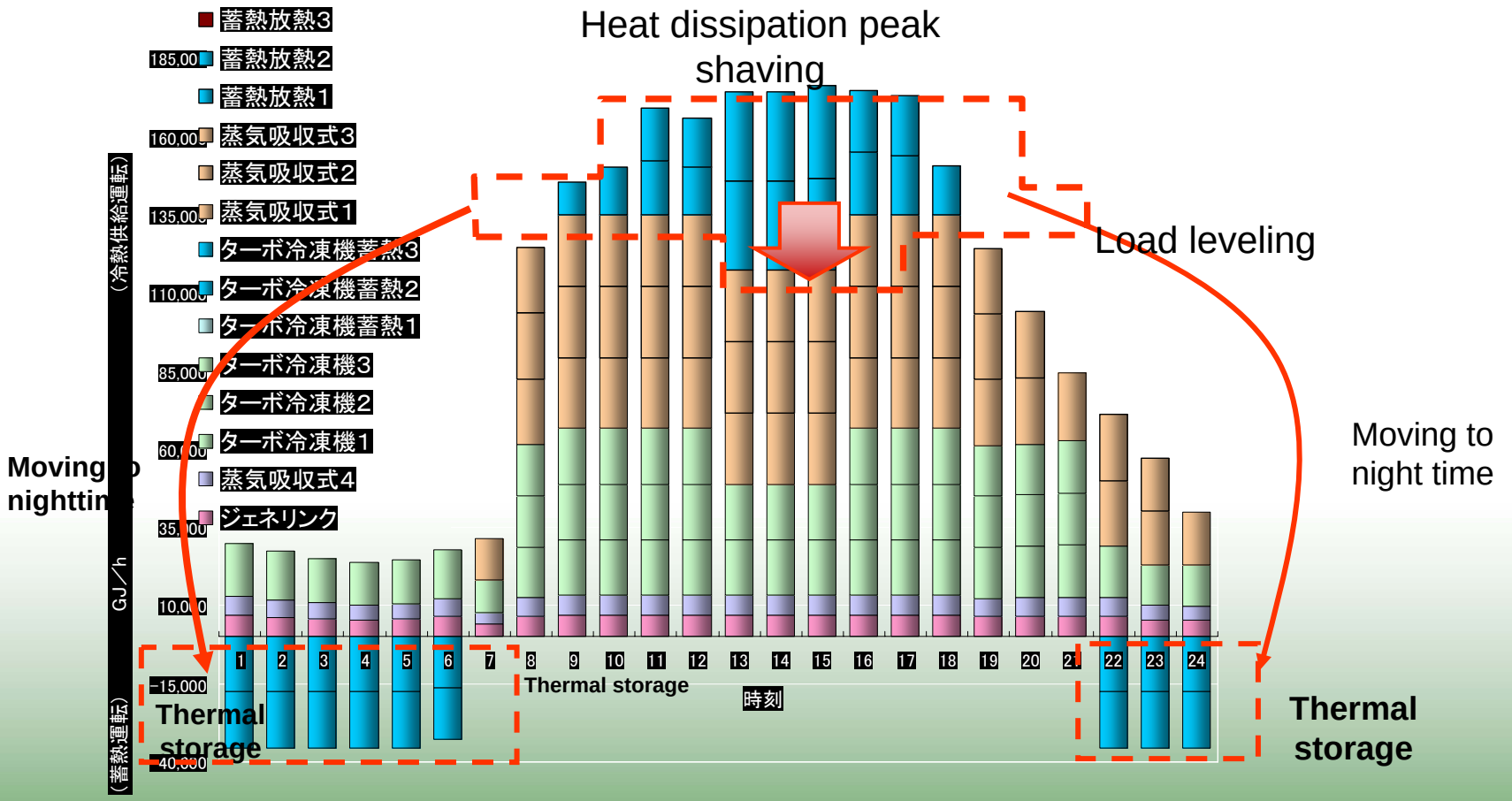
Provide 30% of the entire refrigerating capacity (heat dissipation capacity: 5,700USRT)

Stores 4 ˚C water during 22 in the night to 8 in the morning

High-efficiency due to 15.2m water depth (from pressure plates 4 directly under the tower building to under floor of third-floor basement)

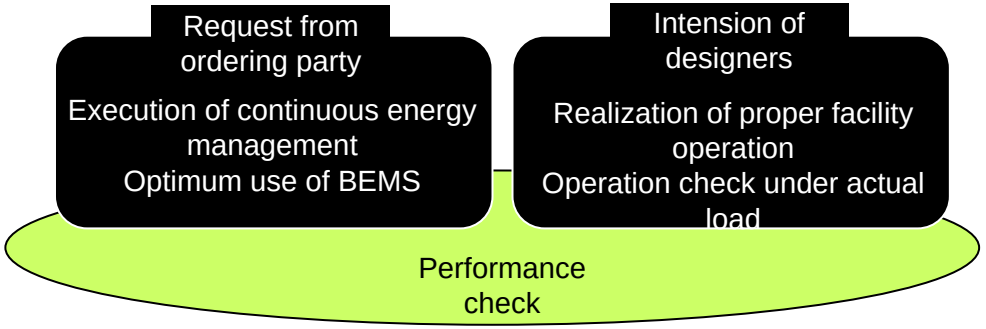
Operation and Effect of the Cold Water Thermal Storage Tank

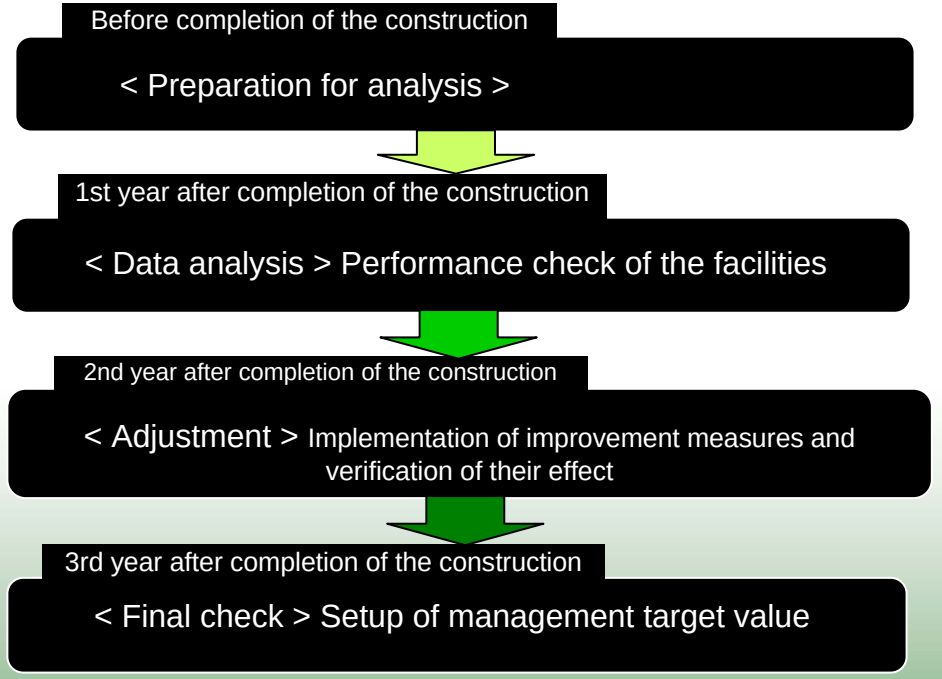
The thermal storage system stores daytime load during night and contributes to load leveling and peak shaving



Cold source system operation pattern (calculated values) during assumed summer peak days

Overview of Performance Check – Objective, Steps and Structure -

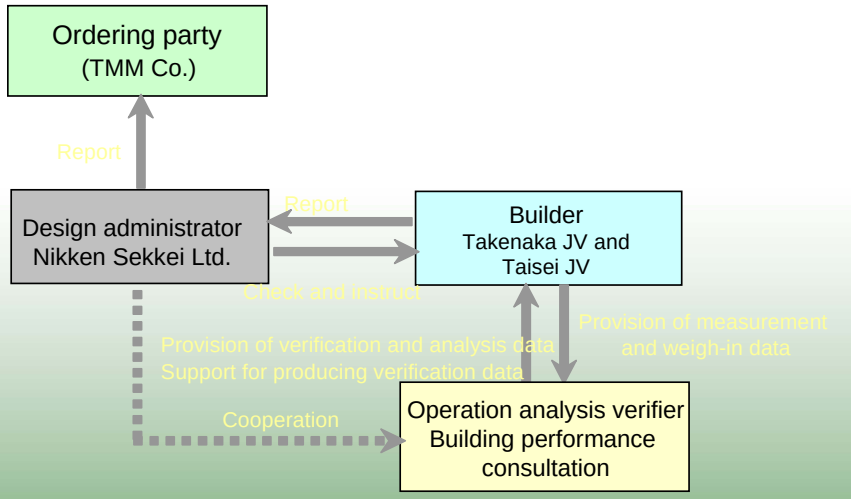




Steps for performance check

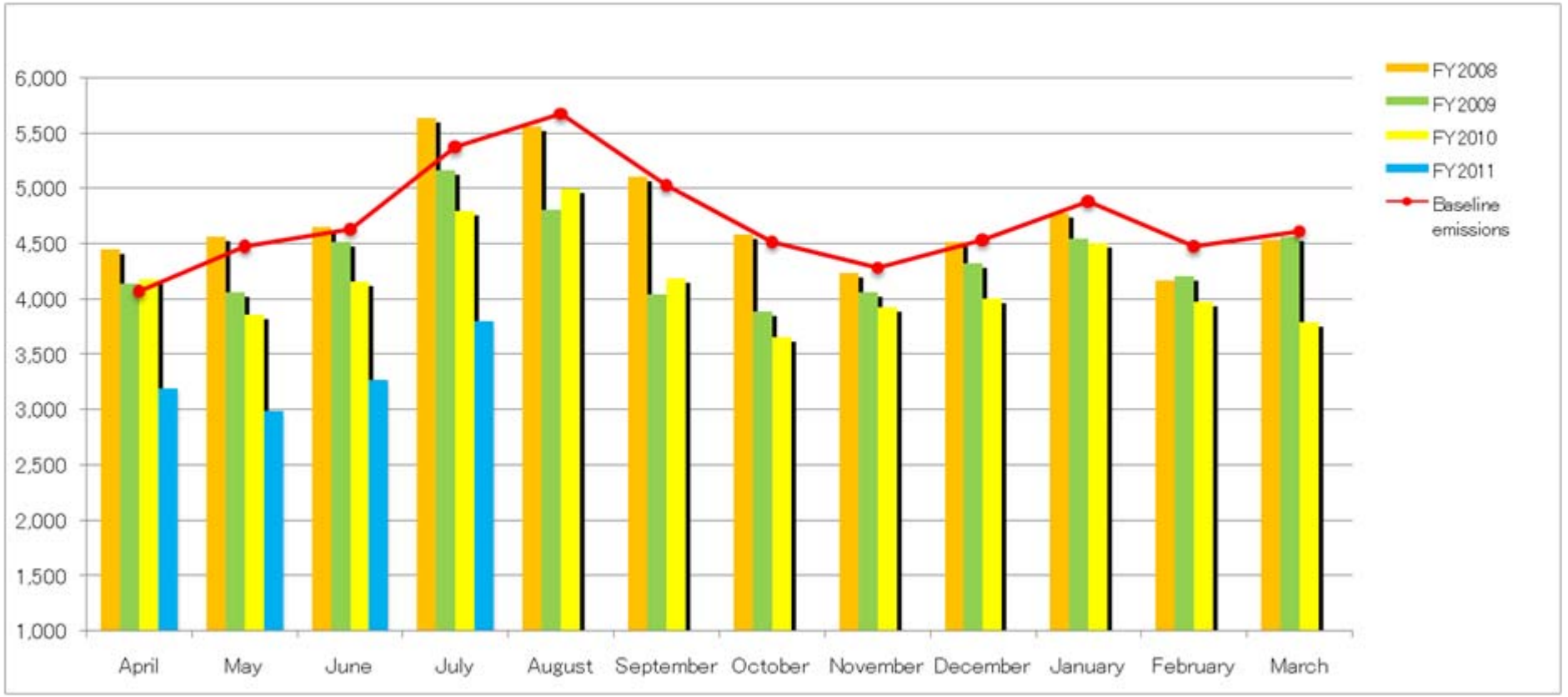
Date is collected for three years after completion of the construction (from April 2007 to March 2010) and by executing operation status check as well as indoor environment check for heat source and air conditioning systems under actual load whether or not design specifications are satisfied have been verified.

Also optimal operation conditions, indoor environment, and energy source unit according to usage are clarified to establish the operation standard which can be used for facility management after the for 4th year



Structure for performance check

Carbon Dioxide Emission Change



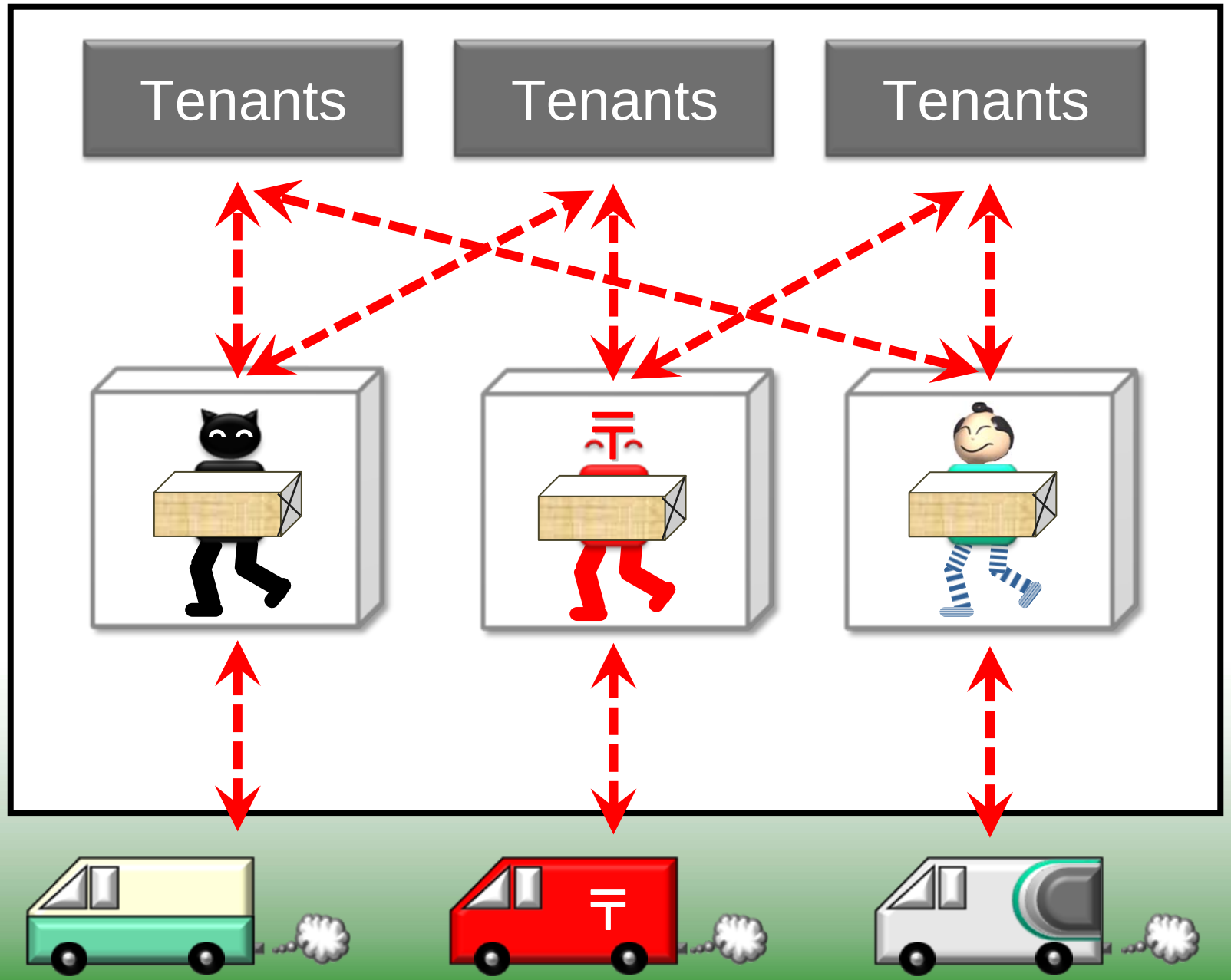
(Unit: t-CO2/year))

	April	May	June	July	August	September	October	November	December	January	February	March	
FY 2008	4,451	4,563	4,653	5,633	5,562	5,106	4,587	4,231	4,516	4,777	4,164	4,534	56,777
FY 2009	4,136	4,062	4,515	5,163	4,808	4,047	3,887	4,059	4,321	4,545	4,210	4,568	52,321
FY 2010	4,178	3,861	4,161	4,792	4,998	4,187	3,657	3,925	4,006	4,505	3,970	3,794	50,034
FY 2011	3,192	2,985	3,274	3,805									13,256
Baseline emissions	4,071	4,473	4,633	5,372	5,675	5,031	4,518	4,285	4,537	4,885	4,475	4,613	56,566

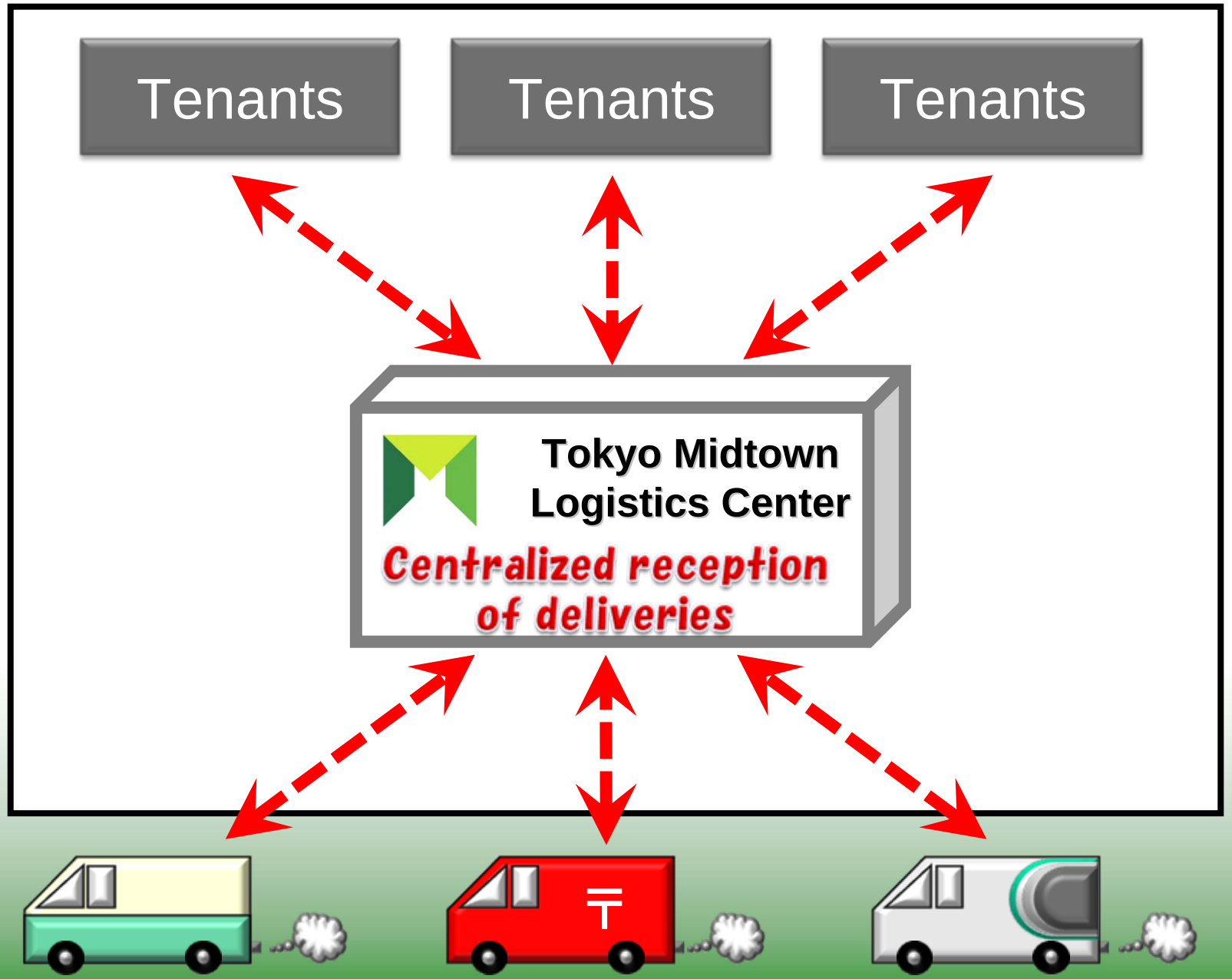
The above CO2 emissions are calculated based on Tokyo Metropolitan Ordinance on Environmental Preservation (new system) .

There is a possibility of slight change in 2011 numbers as actual results of the previous year's gas usage for commercial tenants and the hotel are tentatively used.
Baseline emissions are average numbers for two years of 2007 and 2008 which are the basic emission years of this building.

Conventional Internal Logistics



Integrated Internal Logistics



Photocatalyst Reduces the Chemical Usage

Big Canopy

Water landscaping and fountains

Photocatalyst water purifier

Comprehensive Waste Separation and Proper Disposal

Waste Separation (16 categories)

Recycling (12 categories)

Office-use paper, newspaper, magazines, shredder scrap, cardboard, mixed paper, polystyrene, bottles, cans, plastic bottles, batteries, and fluorescent light tubes and light bulbs

Incineration (thermal recycling)

(3 categories)

Burnable garbage (non-recyclables), raw garbage, cigarette butts

Landfill disposal (1 category)

Non-burnable garbage and lunch containers (made of primarily plastic)

Environment Education Campaign

- Through various events, everyone is to consider our environment


Tokyo Midtown
End