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HIKARI

EUROPE'S FIRST MIXED BUILDING COMPLEX WITH POSITIVE ENERGY

Inaugurated on September 17, 2015, HIKARI is composed of three buildings along Place Nautique in the heart of Lyon's new Confluence district. HIKARI is part of the sustainable urban planning program for the Confluence area, the first district in France to be awarded a WWF label. The complex includes an office building, a building with 36 apartments, a mixed office/housing building and businesses on the ground floor in the three entities.

Because it allows mixed use and shows strong performance in energy production and sharing, the HIKARI project is on the cutting edge of innovation, making it Europe's first positive energy building complex.

INNOVATIONS

▶ The project highlights technical innovations based on the local production of renewable energy, representing a real step forward in energy efficiency. The bioclimatic architecture enables capturing a maximum of natural light; the triangular cutouts on the façade and the large glassed-in areas direct light to the inside of the building.

Three renewable energy sources have been implemented (integrated photovoltaic panels, geothermal system and cogeneration plant using canola oil).

The particularly innovative technical character of the complex stems from its ability to store and share energy produced separately by the three buildings. In addition, users can track, optimize and manage the energy consumption in their living area.

▶ Mixed use inside a single building is a key project feature that aims to provide another way of thinking about the "home-work-leisure" relationship within the city.

▶ The partnership between Lyon Métropole and NEDO (a Japanese para-governmental agency dedicated to energy and environmental innovation) emphasizes the international character of the approach by choosing HIKARI as the demonstrative symbol of a new type of habitat.

KEY DATA

→ **HIKARI means « light » in Japanese**

→ **12,800 m² complex with mixed uses**

- **HIGASHI** («east» in Japanese): **5,500 m² of offices**
- **MINAMI** («south» in Japanese): **3,400 m² of apartments**
- **NISHI** («west» in Japanese): **2,500 m² of offices and 700 m² of villa-style lodgings**

→ **1,000 m² of businesses and services** on the ground floor of the three buildings

→ **160:** the number of households that can be covered by renewable energy production through the cogeneration plant and the photovoltaic plant.

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STAKEHOLDERS

▶ Although the buildings were designed by Japanese architect Kengo Kuma, HIKARI is part of a broader urban project (Lyon Smart Community) based on a partnership between Greater Lyon and NEDO (a Japanese public and para-governmental agency dedicated to energy and environmental innovation) Toshiba provides expertise in equipment based on low energy consumption and in the centralized steering of energy.

Bouygues Immobilier is the project manager and a financial backer. NEDO also participates in financing.

Kengo Kuma, Architect

Lighting is one of the most energy-consuming factors, particularly in office environments. This is why light was chosen as the starting point and guideline for the project.

IMPLEMENTATION

▶ The project originated with a memorandum of understanding between Greater Lyon and NEDO.
One of the particularities of the HIKARI implementation was the joint selection of an outfitter by Greater Lyon and NEDO. Building began in the spring of 2013, and the complex was delivered in July 2015.

Various goals guided the operation:

- Ensure that an industrial building approach (Toshiba) coincided with a traditional development approach using a real estate promoter. Respecting deadlines was thus an important factor.
- Implement technological standards providing a detailed verification of the reception and installation of captors, a key element in the production and management of energy consumption in the complex.
- Implement training and support for users and residents on how to make the most of technologies found in the complex buildings.

RESULTS

/// Total production of renewable energy through the cogeneration plant and the photovoltaic plant is 476 MWh, the equivalent of consumption of approximately 160 households.

/// The production of renewable energy through cogeneration in the complex covers 80% of electricity needs and 90% of heating needs for occupants.

/// Thanks to the storage and sharing of energy produced, the HIKARI complex should consume about 55% less than current thermal norms.

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FINANCIAL SCOPE OF THE OPERATION

/// The HIKARI complex is part of an approach based on demonstration and education; the statistical tracking of energy performance will serve as a model for future projects in this area. Not enough time has elapsed to enable an overall appreciation of the project's financial aspects.

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Contact:
Lucie VERCHÈRE, Métropole de Lyon, chargée de mission «temps et services innovants», lverchere@grandlyon.com
Emilie GERBAUD, Chef de projet Métropole Intelligente Métropole de Lyon, egerbaud@grandlyon.com