

O-22	Keywords	Y3	equipment or facility	Z4	electricity	S3	ZEB/BEMS
						D	Construction

NIKKEN SEKKEI LTD.

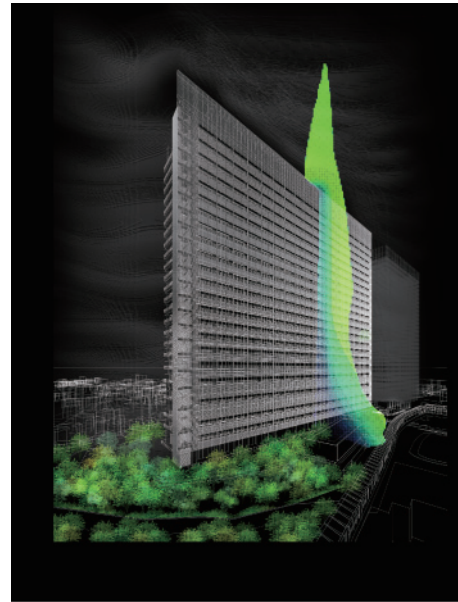
An Office Building as a Large Sustainable Device

Features

This project was inspired by the paradoxical idea of improving the environment through the presence of large-scale architecture. The Project—an office building for Sony’s R&D department—takes the form of a slab to ensure good views and, more importantly, to minimize the heat island effect by positioning its narrow sides against prevailing winds, thus allowing the breeze to flow in from Tokyo Bay without hindrance. The building was then conceived as a massive cooling devise that performs in much the same way as a natural forest.

All the building’s mechanisms are integrated into the facades, which were designed in response to the environment.

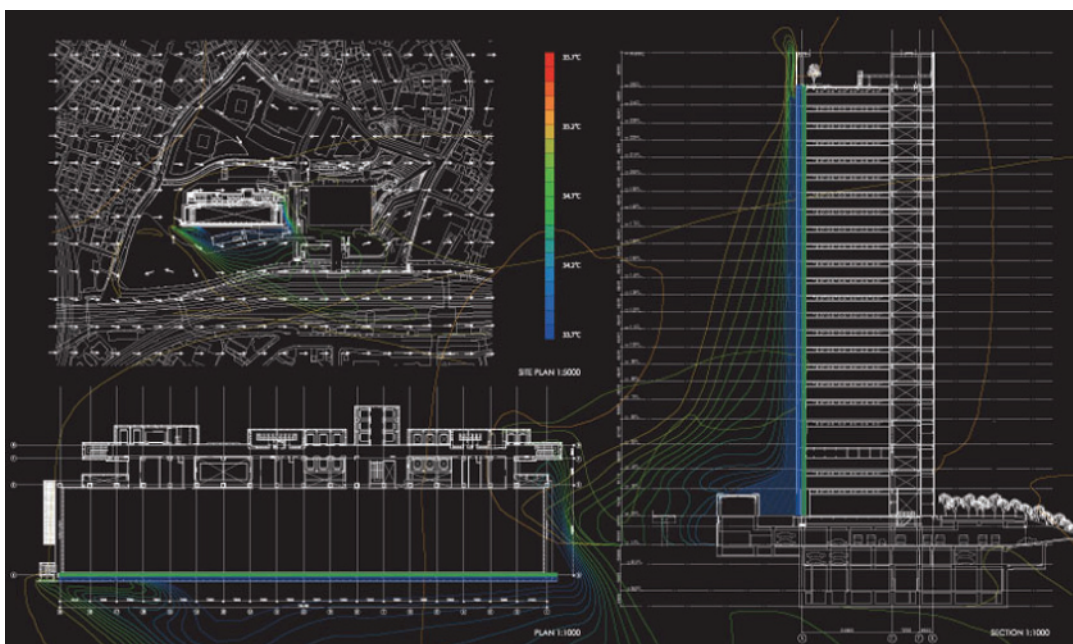
Elevators and stairways were placed on the western facade to block the strong afternoon sun. Protruding solar panels on the south elevation also work as shading devices, generating electricity while at the same time blocking out the heat. The eastern facade is covered with specialized ceramic louvers that guide rainwater through the system to act as enormous sprinklers for cooling the environment. Thus, far from being a catalyst of the heat island effect, the building operates as an urban “cool spot” with temperatures comparable to being in the middle of a 20,000m² forest.



Basic Concept or Summary

Uchimizu - this is a Japanese traditional summer ritual to cool the ground .Taking in this concept, BIOSKIN, a new exterior system, achieves to control the heat-island phenomenon. The water allows heat energy from the surrounding environment as it evaporates, cooling the areas.

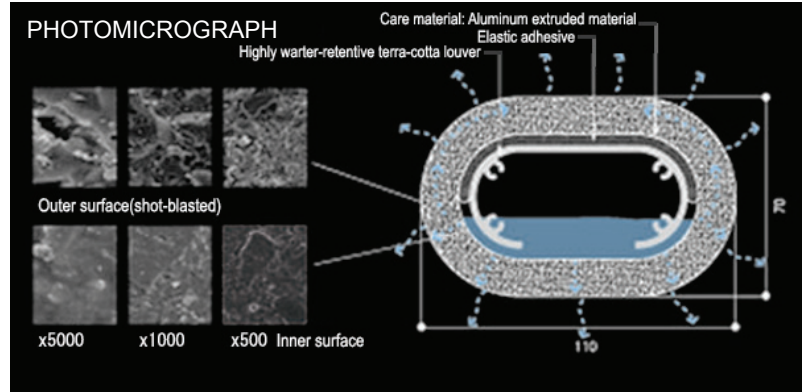
For Sony’s new office building, BIOSKIN is applied to the entire east side of the building. By cooling the prevailing winds from the south that strike the side of the building facing east, the temperature of the surrounding air can be reduced by 2°C, thereby reducing the air-conditioning cooling load and creating a comfortable exterior environment.



A primitive, but new technology: Circulation of rainwater through porous ceramic tubes

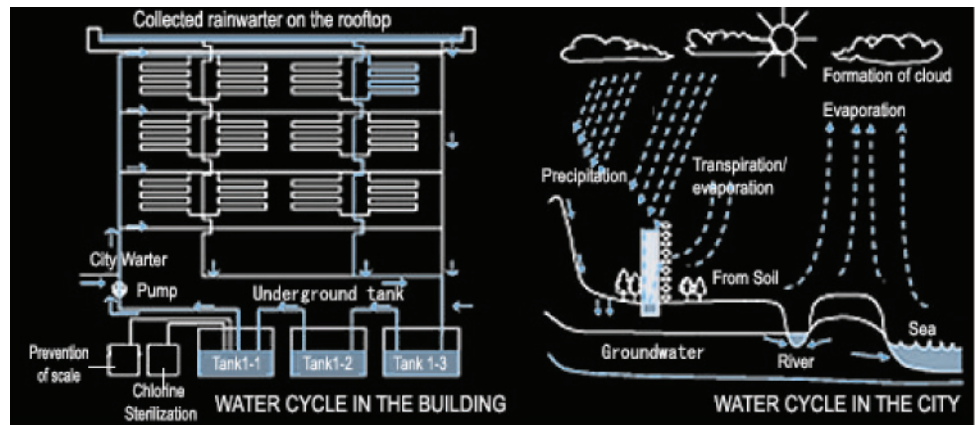


ELEVATION



Porous ceramic pipes are made with soil. The rainwater collected from the surface of the rooftop and stored in the underground storage tank is pumped up and circulated throughout the pipes that are connected in a sudare form. The rainwater penetrates the porous ceramic and then evaporates from the pipe surface, thereby cooling the surrounding air.

- Tank1-1
Water Spraying water tank/
Water-receiving water tank
- Tank1-2
Sterilization water tank
- Tank1-3
Filtered raw water tank



Rainwater is not discharged into sewage immediately, but is retained in the outer surface of the building for evaporation. Excess of water is impregnated in the soil of the premise as much as possible. This will result in the normalization of the water cycle and reduction in load on the sewage infrastructure in the urban environment.

Installation in Practice or Schedule

Domestic

Sony's Osaka New Building Project



Contact: **NIKKEN SEKKEI LTD.**
 TEL: +81-3-5226-3030 Fax: +81-3-5226-3058
 URL: <http://www.nikken.jp>