

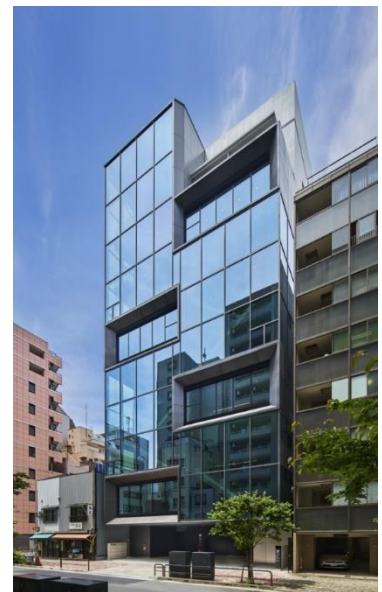


Excursion Information

The excursion trip is carried out from the morning of 24 May, the day after the conference. It will feature award-winning buildings and research facilities in Japan which incorporate the latest technology related to indoor environment quality, ventilation, and energy conservation. Attendees may choose between the Tokyo metro course, visiting zero energy office buildings, Shinryo Shinjo Building and DaiyaGate Ikebukuro, both which are first place winners of the ASHRAE Technology Award, or the Research Lab course, touring the Takasago Innovation Center in Tsukuba-Mirai city.

Tokyo Metro course

Shinryo Shinjo Building is a tenant office building in Tokyo. Two energy-saving air conditioning systems, convection and radiant, were developed and installed on floors of identical layout, then their operations were compared from multiple perspectives. For all the floors with each system, a standard ceiling height (2800mm) was achieved within a reduced floor-to-floor height (3450mm instead of the usual 4000mm), resulting in additional floors under the local height restrictions. The convection type is a variable airflow system that uses the Coanda effect to deliver air to the entire room with 83% less fan power without ducts. The radiant type is a variable temperature/water volume control system designed to maximize the use of free-cooling system throughout the day even when the outside temperature rises near 30 degrees, depending on the outdoor humidity.



DaiyaGate Ikebukuro is the first tall office building in Japan, spanning over the railway tracks. This building features a new combination HVAC system of central AHU and the perimeter through-wall units, utilizing exhaust heat recovery for a high-rise building to achieve independent cooling/heating plus ventilation, in consideration with comfort and good air quality. Besides, the complex heat source system using a heat storage water tank for resiliency and ecology has been used to level the load and reduce peak demand. This system, by successful integrative design achieved a healthy building that combines energy conservation, resilience and indoor environmental comfort, considering the health of the occupants and operational management.



Research Lab course

Takasago Thermal Engineering Innovation Center was completed in January 2020 to commemorate the 100th anniversary of the company's founding in 2023. The design concept of this building is "sustainable architecture that achieves both reduction of global environmental load and improvement of intellectual productivity". It has adopted an architectural design that allows natural ventilation and natural lighting while aiming for solar shading and high heat insulation. In terms of equipment, it has introduced energy-saving systems such as desiccant outdoor, radiant, and individual air conditioning. In addition to solar power generation, we have introduced biomass gasification power generation and large-scale storage batteries as renewable energy. Furthermore, it pumps groundwater and actively uses it for air conditioning.



Approach to realize ZEB

Overview of ZEB system

