

## About Swire Properties Limited

Headquartered in Hong Kong, Swire Properties is a leading developer, owner, and operator of mixed-use, principally commercial, properties in Hong Kong and the Chinese mainland, with a presence in Miami, U.S.A. We also have established offices in Singapore, Indonesia, and Vietnam. In 2021, total gross floor area attributable to the Group was 30.7 million square feet including retail, offices, hotels, restaurants, and mixed-used properties.

Creative Transformation captures what we do and how we do it. It underlines the creative mindset, original thinking and long-term approach that enables our employees to reach beyond the conventional and seek new perspectives. We strive to unlock the potential of places by creating vibrant destinations and stimulating further growth to produce sustainable value for our shareholders, our business partners, and the people with whom we work.

Our commitment to SD once again received global recognition in 2021. Swire Properties was ranked highly in several major SD-related benchmarks and indices. For the fifth year in a row, we were the only constituent company from Hong Kong to be listed on the DJSI World. We ranked seventh out of 237 leading real estate developers from around the world, and we ranked first in Asia.

For the fifth year in a row, we retained our Global Sector Leader title in the Mixed Use developments category under GRESB. We were also recognised as the Global Development Sector Leader in the same category for the second year in a row. In addition to our five-star rating on the benchmark, our public disclosure was awarded with the highest rating, “A”, for the fourth consecutive year.

In Hong Kong, we topped the Hang Seng Corporate Sustainability Index for the fourth consecutive year, receiving the highest total score among all index constituents, while also maintaining a “AAA” sustainability rating – the highest possible grading. We were one of only two companies to receive this rating among more than 500 assessed stocks.

For more details on Swire Properties: <https://sd.swireproperties.com/2021/en>

### **Problem Statement**

*To reduce air-conditioning electricity consumption by enabling personal control of thermal comfort (in an office with AHU-VAV air-side system) and an occupant engagement program.*

## ***Aims***

Swire Pacific Sustainable Development (SD) Fund Challenge Process, invites innovators to submit a new solution to be trialled with the intention of implementing and scaling to other sites with similar problems.

- Solutions may include, but are not limited to:
  - **Sensors to optimize energy use of HVAC system and occupant comfort by detecting and using occupancy/temperature/air data**
  - **Building analytics systems to operationalize data from built environment, devices, people, and workflows (such as digital twins)**
  - **Smart HVAC systems leveraging AI or machine learning for office buildings and malls**
- Swire Properties is open to research-phase technologies in their infancy as long as they are deployable for buildings and impact can be demonstrated.
- Solutions should be able to be easily retrofitted/installed and with an occupant engagement solution
- The trial will likely be conducted in one or more buildings in a Swire Properties' portfolio in Hong Kong or Chinese mainland.

## ***Problem Background***

Swire Properties has its Science Based Targets approved with a target of reducing Scope 1 and 2 absolute emissions by 25% and 46% by 2025 and 2030 respectively versus a 2019 baseline. The majority of Swire Properties' emissions come from electricity consumption; thus, they aim to explore technologies which can reduce this on-site.

Thermal comfort is dictated by room temperature setpoint and air speed. These are normally centrally controlled in an office building, which may lead to a disconnect between occupant thermal comfort and A/C control. In Hong Kong, the indoor temperature setpoint is normally set to around 23-24°C, sometimes even lower, which may lead to occupants feeling slightly cold. A 1°C increase in indoor temperature setpoint is expected to reduce 7-10% electricity consumption of the A/C system, which would be equivalent to approximately 5-6% reduction of total landlord electricity consumption.

To bridge the gap between occupant thermal comfort and A/C control, we aim to explore IoT solutions which would allow personal occupant control of A/C linked with an occupant engagement platform to enhance comfort and reduce electricity consumption of A/C.