

JOINT MEDIA RELEASE

SOUTH BEACH TOWER OFFICE FIRST TO RECEIVE GREEN BUILDINGS INNOVATION CLUSTER (GBIC) 2.0 DEMONSTRATION PROGRAMME SUPPORT TO ACHIEVE 75% ENERGY EFFICIENCY¹

1. South Beach, an iconic BCA Green Mark Platinum integrated mixed-use development located in downtown Singapore, comprises a Grade A office tower, JW Marriott Singapore South Beach, a variety of dining options and upscale residential apartments. One of the key sustainability features is its distinctive 280-meter-long microclimatic canopy which spans across the whole development and serves to induce natural ventilation, harvest rainwater for irrigation and harness solar energy. South Beach Tower Office has unveiled a new innovative proposal which will provide better thermal comfort and air quality for its occupants.
2. South Beach Tower Office is the first recipient under BCA's GBIC 2.0 Demonstration Programme² and will receive up to \$1.6m of funding support to push for higher energy savings by leveraging novel solutions with a significant impact on energy savings without compromising thermal comfort and indoor air quality. The proposal will holistically integrate three solutions to enhance the overall energy efficiency of its air conditioning system, enabling it to achieve 75% energy efficiency improvement (from 2005 levels). The solutions are developed in collaboration with four other partners – led by sustainability consultancy GreenA

¹ From 2005 levels

² <https://www1.bca.gov.sg/buildsg/buildsg-transformation-fund/green-buildings-innovation-cluster-gbic-programme>

Consultants and three solution providers, Akila, Resync, and ebm-papst (see Annex A for details). This underscores South Beach's strong focus on sustainability to create a sustainable, comfortable and healthy environment for its tenants, creating a win-win arrangement for both parties.

3. The proposed initiatives are part of South Beach's sustainability goals to achieve Green Mark: 2021 In Operation (SLE) certification for South Beach Tower office block and are aligned with Singapore's Green Building Masterplan. The total cost of these initiatives will amount to \$3.9 million. The targeted energy savings is approximately \$411,000 per annum and the payback period is approximately 5.6 years. In addition, the facilities management team will also be upskilled to handle these new AI-based technology.
 4. Ms Samantha Tan, General Manager, South Beach Consortium Pte Ltd, said, "By pioneering these latest green building innovations, South Beach seeks to set new standards in building sustainability and inspire other building owners to embrace similar technologies to create a healthier, more energy-efficient environment for its occupants."
 5. Mr Tan Chee Kiat, Deputy Chief Executive Officer (Industry Development), BCA said, "Building on the success of GBIC demonstration projects, we believe that energy efficiency boundaries can be pushed further by leveraging artificial intelligence and Internet of Things. The GBIC-Demonstration project on South Beach Tower Office aims to demonstrate how this could help to address the challenges of energy consumption patterns and achieve energy optimisation while delivering thermal comfort. Together with the earlier two projects awarded by BCA under the GBIC 2.0 Research and Innovation Programme, this would take us a step closer to achieving the 80% energy efficiency improvement (from 2005 levels) target for best-in-class green buildings by 2030, under the Singapore Green Building Masterplan."
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About South Beach

The mega South Beach complex is a joint venture between City Developments Limited (CDL) and IOI Properties Group Berhad. Strategically located on Beach Road bordering Singapore's Central Business District, the mixed-use development seamlessly integrated four conserved military buildings with 2 towers to collectively comprise 510,000 sqft of Grade A office space, 190 luxury residences, the 634-room JW Marriott Singapore South Beach and an array of dining and lifestyle establishment. It is also strategically located and seamlessly connected to two underground MRT stations – Esplanade and City Hall Interchange.

Conceived by world renowned architectural firm Foster + Partners, South Beach's iconic architecture is designed with the idea of blending innovative form with environmentally sustainable design to create a distinctive, high-quality development that fits in with Singapore's tropical climate and urban context.

One of South Beach's unique eco-friendly features is its state-of-the-art microclimatic canopy that extends throughout the development. The canopy, engineered to harvest rainwater and fitted with photovoltaic cells to convert solar energy into electricity, also serves an added purpose of providing pedestrians beneath it with a naturally ventilated shelter from the worst of the city's tropical climate. The development's green efforts are further supported by its good orientation, high-performance glass façade and extensive sky gardens which help to absorb heat and maintain a high level of thermal comfort throughout the day. In addition, energy and water-efficient fittings and certified green label building materials all contribute to South Beach's commitment to being one of Singapore's most environmentally conscious developments.

About BCA

The Building and Construction Authority (BCA) champions the development and transformation of the built environment sector, in order to improve Singapore's living environment. BCA oversees areas such as safety, quality, inclusiveness, sustainability and productivity, all of which, together with our stakeholders and partners, help to achieve our mission to transform the Built Environment sector and shape a liveable and smart built environment for Singapore. For more information, visit www1.bca.gov.sg.

Annex A

1. Intelligent Building Automation and Smart Controls: Machine Learning Technology for Efficient and Automated Airside Cooling

- Resync specialises in optimising the airside cooling by using its artificial intelligence and machine learning capabilities to deliver efficient and automated cooling to occupants. This is achieved with the use of sensors to detect the trending air quality, occupancy and outdoor weather data. The artificial intelligence technology analyses the data and predicts the cooling demands. This allows the air conditioning system to deliver efficient and precise cooling to the occupants, where it is needed and when it is needed. This minimises any overcooling provision and saves energy as result. This will be the first project where Resync's solution will be integrated with Akila's solution to carry out both airside and waterside optimisation.
- A scenario is when occupants return to the office premises after lunch from a hot outdoor environment. The air conditioning system will deliver increased cooling at the appropriate time and location, based on the occupancy patterns and outdoor weather temperature. As a result, the occupants enjoy better thermal comfort and air quality.
- After the occupants have settled down, the air conditioning system will detect the reduced activity level, and reduce its cooling provisions appropriately. This allows the air conditioning system to conserve energy without comprising on the thermal comfort of the occupants.

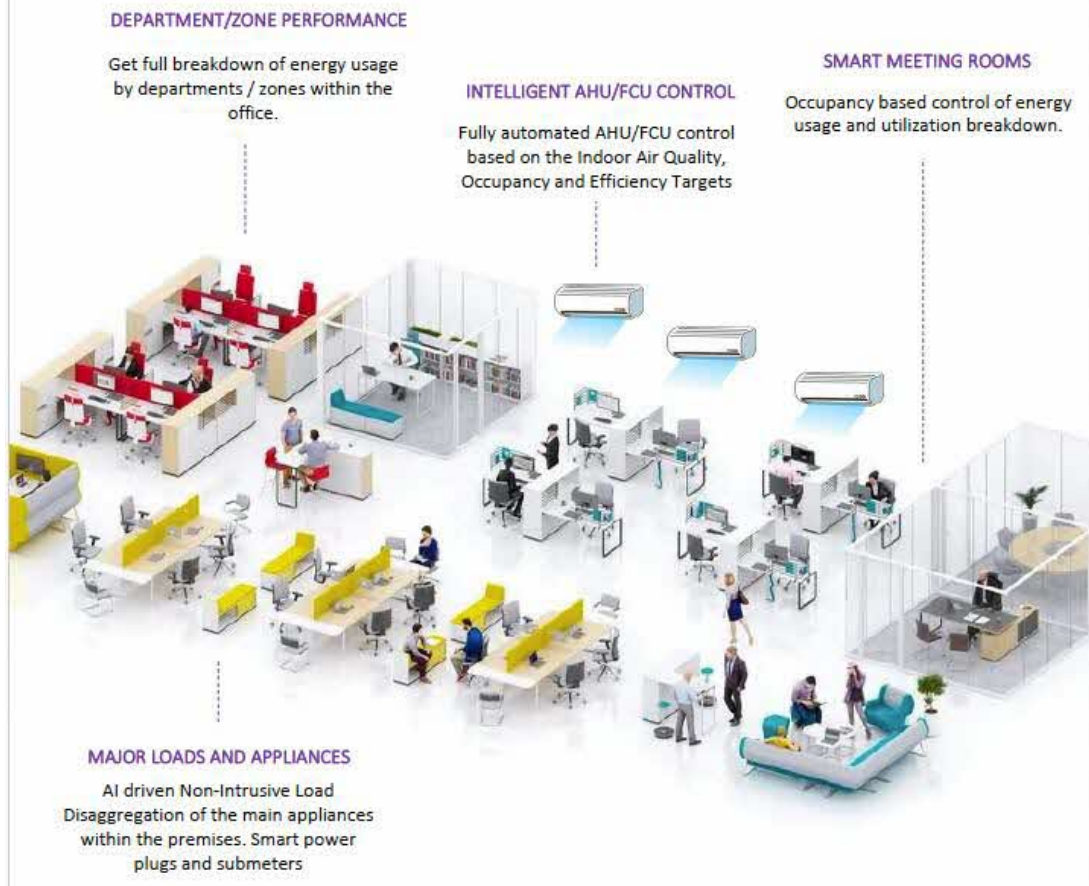


Illustration of smart airside cooling by Resync

2. Lightweight High Efficiency EC Fans for Air Handling Units (AHU)

- Ebm-papst employs its best-in-class EC fans for the AHUs to achieve greater energy efficiency. This is also the first implementation in Singapore for its new Radipac C – a composite lightweight material to replace metal impellers of the fan. Due to its lightweight properties, the New Radipac-C alloy fan impeller is more energy efficient than the metal impeller. Additionally, it also has less embodied carbon as compared to metal impeller.

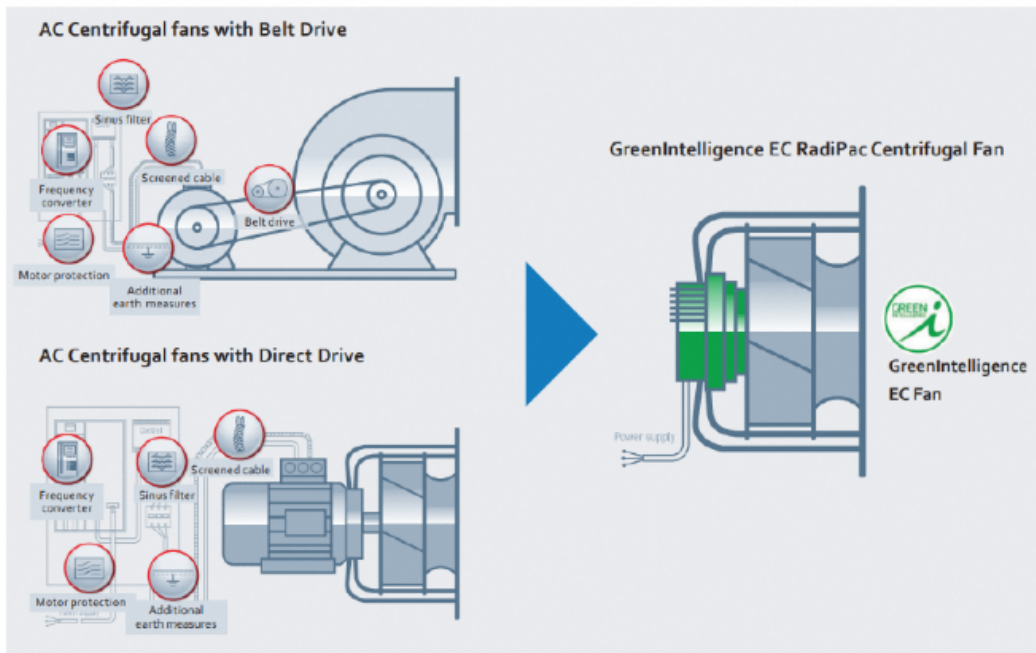
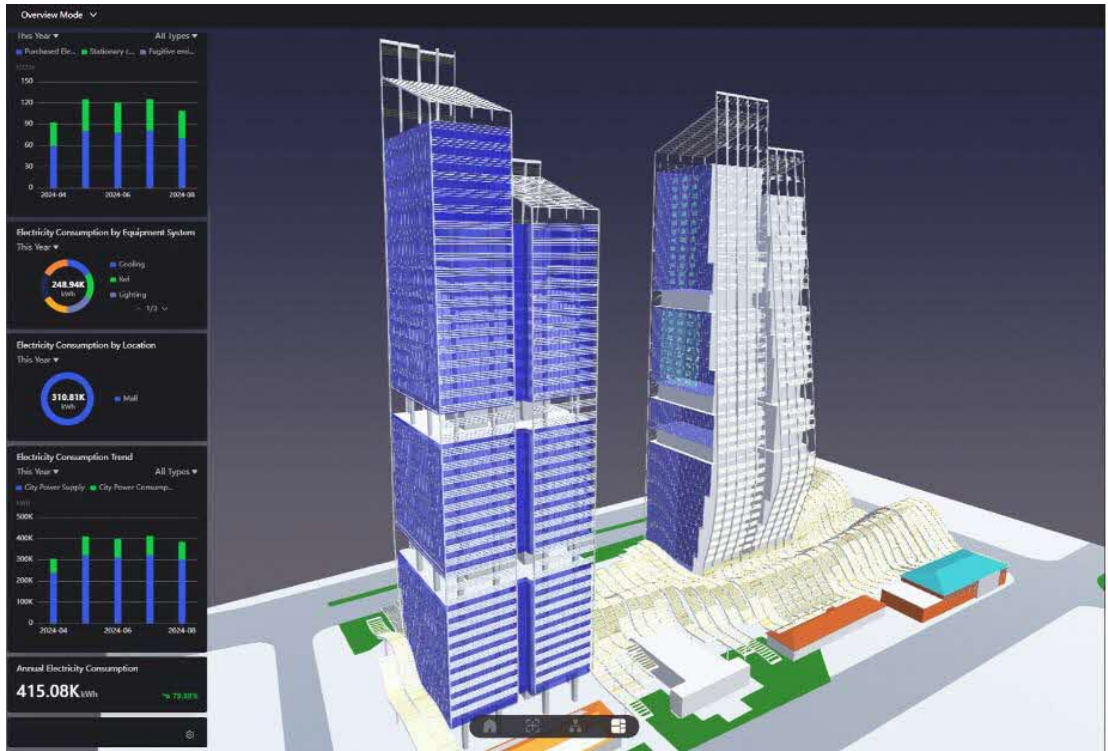


Illustration of ebm-papst high efficiency EC fans for AHU

3. Digital Twin Technology with Artificial Intelligence and Machine Learning Capabilities for Building Operations

- Akila employs machine learning capabilities to efficiently manage the chilled water flow of the central chiller plant. This is done by using its digital twin technology to construct a virtual replica for South Beach's building operations.
- The system is expected to be the first machine learning-driven digital twin for a mixed use development involving hotel and office tower. It converts temperature and humidity readings in the building into actual cooling demand in real time with the help of thermodynamic models. The system delivers exactly the amount of cooling based on this information, preventing any unnecessary over-supply and conserves energy as result.



Digital Twin Virtual Replica of South Beach by Akila