

TRANSLATING
**RESEARCH
& INNOVATION**
IN THE BUILT ENVIRONMENT



4

CHAPTER

TRANSLATION THROUGH TECHNOLOGY INTEGRATION



SAMWOH SMART HUB – FIRST POSITIVE ENERGY INDUSTRIAL BUILDING IN SINGAPORE

Samwoh Corporation is taking its 'green' journey to another level with the construction of the first positive energy industrial building in Singapore. This 4-storey building known as Samwoh Smart Hub is an ambitious project which aims to surpass BCA's latest Green Mark Platinum Super Low Energy standards.

We are adopting numerous state-of-the-art technologies to bring down our energy consumption and at the same time, utilise the latest innovations in solar-panel systems to generate more than our required usage.

As a champion for sustainability in construction, our positive energy building will be constructed using various types of recycled construction materials such as recycled concrete aggregates (RCA), repurposed sedimentary rocks from the Jurong Rock Cavern, green cement, Manufactured sand (M-sand) and other innovative solutions.



Front view of Samwoh Smart Hub

Samwoh Smart Hub will be more than just a workplace for our employees but one that allows our employees to thrive in an open and lively environment. Spaces created are conducive for work, seeding of ideas and collaborations, relaxing reads or breaks with dedicated corners and thoughtfully designed cubicles, and staying active throughout the day with walkways lined in abundant greenery.

Our employees and guests can expect a high level of comfort and convenience from the intelligence embedded in the building. The company can reap the returns on investment in the advanced technologies deployed from the lower running cost.

We also hope that this development can be a fruitful learning ground for many built and energy professionals and when completed, be a showcase to inspire the drive towards greater sustainability among our BE community.



Rear view of Samwoh Smart Hub

To achieve the status of Positive Energy Building (PEB) in Samwoh Smart Hub, the design approach was to reduce energy consumption to its minimum and offset it with at least 110% on-site solar power. Samwoh Smart Hub is remarkably expecting energy savings of at least 50% from BCA Green Mark Criteria Version 2015.



Aerial view of Samwoh Smart Hub

The building façade has been optimised to reduce east and west sun exposure while drawing daylight through the entire length of north and south façade as well as courtyards despite the challenging deep floor plates.

Samwoh Smart Hub will be adopting a solar-driven direct current chiller and domestic water pumps. This DC chiller system is a technological breakthrough with one of the lowest power loss among many of the latest innovations in ACMV. It will be the first of its kind to be used in Singapore.

Samwoh Smart Hub is sited along the coastal waters of Singapore. Most of the outdoor equipment will be subjected to high corrosion risks. The Cooling Tower Open Circuit with electronically commutated technology addresses all these challenges with its robust corrosion-proof materials and innovative arrangement of the air/water interface for better heat exchange.

We are using a very special Direct Current Smart Fan Coil Units (Smart FCU) to eliminate the technical limitations with conventional FCU through the built-in air purging, fresh air supply and auto water balancing capabilities within the unit. These Smart FCUs are also able to provide cooling with elevated chilled water temperature to reduce overall energy consumption.

An artificial intelligence system built into the Energy Management System is developed through ZEB Technology's verified empirical data. The developed AI programming algorithms is expected to enhance building performance through smart automation controls and diagnosis features to further reduce energy wastages and optimise energy efficiency.

CONTACT DETAILS

Name: Joseph Loh Kum Hoong
Email: ZEB0209_Samwoh_Hub@zeb-tech.com
Institution/Company: ZEB-Technology Pte Ltd



SAMWOH - INNOVATIVE INSIDE OUT

Innovation is rooted in the core values of Samwoh and it has been the major driver of growth for the organisation. More than a decade ago, we embarked on this journey with heavy investment in our R&D. Today, we continue to conduct researches that are practical and add value back to what we do.

Leveraging on our highly qualified researchers and leading-edge testing facilities, Samwoh has successfully developed several first-of-its-kind sustainable products for the industry with acceptance by the authorities. This initiative provides users with a competitive edge in terms of better technical expertise on the products and first-mover advantage over competitors.

Apart from product development, we also invest in innovative technologies that bring intrinsic changes to our operations. We are motivated to streamline our work processes and groom a smart workforce that yields high productivity gains in a safe manner.

At Samwoh, we are an ardent advocate of continual innovation and believe that it is never just top-down. We promote ownership by empowering our employees to adopt innovative solutions in addressing challenges faced. By inculcating an innovative culture within our organisation, we create a complementary and integrated ecosystem while providing good quality jobs for our staff.



Illustration of Samwoh Innovation Centre
