

Leveraging Technology for Better HDB Homes

To advance its goal of creating smart and sustainable homes for Singaporeans, HDB signed three research agreements with industry partners at the World Cities Summit on 10 July 2018. These pioneering research projects will pave the way for the creation of a smart energy town, the optimisation of construction efficiency, and expanded solar capabilities.



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Tengah: The Smart Energy Town

Tengah, announced in 2016 as HDB's newest town, is envisioned to be Singapore's first and largest smart and sustainable town. To realise this vision, HDB is collaborating with SP Group to develop and test-bed a centralised energy software system that will collect, process, and analyse data about energy consumption patterns at the town, neighbourhood, and apartment levels.

Dubbed the "Smart Energy Concierge" and powered by artificial intelligence, the system will be connected to the energy grid, energy storage systems, and solar photovoltaic generators. It will be programmed to identify patterns and anomalies in energy flows to minimise disruption to services, channel energy more efficiently to optimise energy use, and promote greater energy conservation.

3D Concrete Printing

Meanwhile, HDB is partnering with Robin Village Development Pte Ltd, Witteveen+Bos South East Asia Pte Ltd, and Nanyang Technological University to explore the adoption of 3D concrete printing for cheaper and faster production of unique architectural forms and components.

The process of creating customised mould sets for concrete building elements currently takes up to two months. The collaboration will look into developing digital fabrication technologies through the creation of a 3D concrete printer, with the aim of increasing construction productivity, reducing production costs, and expanding design capabilities for HDB developments.

Expanding Solar Capabilities in the Open Sea

Due to land constraints in Singapore, there is a limit to the amount of renewable energy that can be harvested from solar panels installed on land. One possible solution is to deploy solar panels on water bodies as floating solar farms.

To accelerate solar adoption in Singapore, HDB is collaborating with ISO Landscape Pte Ltd to study the deployment of solar panels built on HDB's own award-winning floating modular system in open sea conditions. With fewer obstructions

in the sea, the solar panels can potentially receive the maximum sunlight available.

This is the first time a locally-designed flotation system is being deployed for solar panels. The research project will study how to overcome the challenges of harsh marine conditions such as strong winds, wave action, and the accumulation of marine organisms.

These three research projects are in line with HDB's continuous efforts to harness technology to develop practical solutions to enhance the liveability of HDB estates and support sustainable development in Singapore.