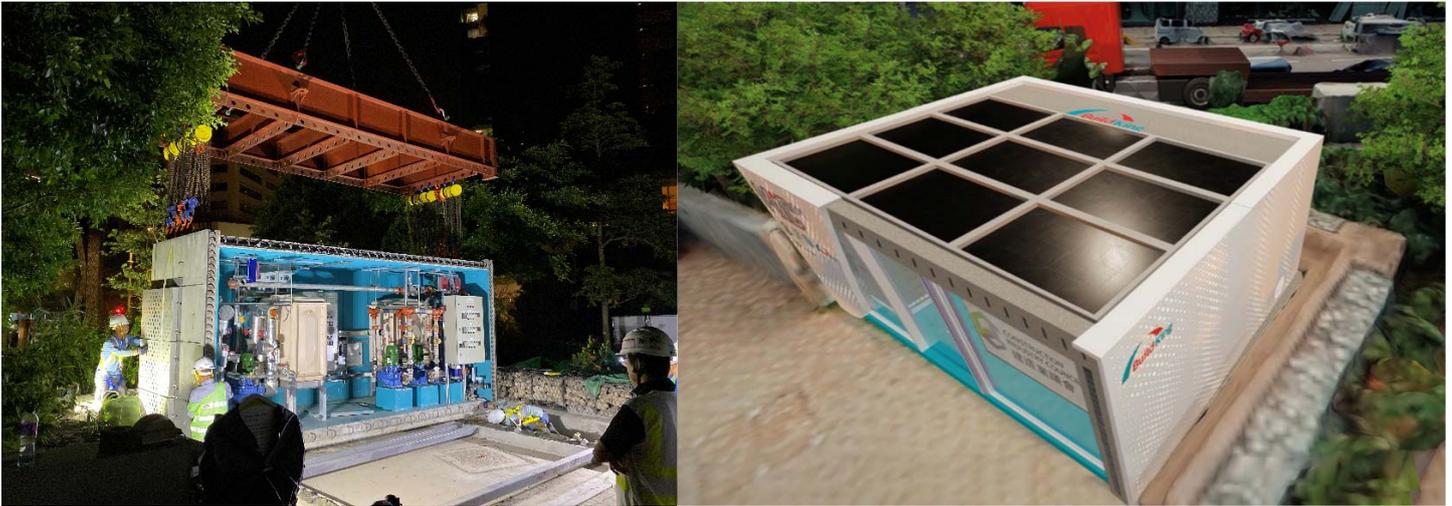


## CIC Zero Carbon Park - emMiC (Stormwater Air Conditioning System)

**Build King Construction Ltd.**  
**Build King Management Ltd.**



Zero Carbon Park has recently conducted a major renovation on its air-conditioning (A/C) system to cater for an increased demand. An innovative cooling & heating method, the emMiC Stormwater Air-conditioning System was applied. This novel system has integrated seamlessly with the Modular Integrated Construction (MiC) technology that captures the benefits on the construction and operation of the sustainable A/C plant.

Being the first of its kind in Hong Kong, emMiC makes use of box culvert stormwater as the heat rejection/extraction media which provides a more energy efficient A/C system. Compared with conventional A/C system and electric heater system, its energy consumption can be reduced by approximately 50% and 70% for cooling and heating respectively. Moreover, compared with the conventional cooling tower, this design achieves 15% energy saving. Other advantages of using stormwater as a condensing media include saving in fresh water, avoidance of Legionnaire's disease and mitigation of urban heat island. Its enhanced design has integrated photovoltaics, smart digital sensors, real-time monitoring devices and high efficient stormwater A/C equipment that achieves net zero carbon plant room operation.

The compact modular system adopts the principle of Design for Manufacture and Assembly (DfMA) for quality control. With all E&M equipment prefabricated off-site ready for connection, emMiC realizes "plug and play" construction process and minimizes on-site work. It greatly reduces disturbance to the existing building, increases the productivity and provides safer construction process. A novel light weighted reinforced concrete in lieu of steel was used to manufacture the module to lower embodied carbon by 30%. With the adoption of patented spiral joint, the concrete emMiC carcass was integrated into the building accurately by structural connection.

The success of emMiC provides a solution to address the challenges of our construction industry and becomes the model for future implementations of sustainable developments.

