Intelligent building technology enhances energy efficiency

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Prof. Wang Shengwei, Chair Professor of Building Services Engineering, and his research team recently developed an intelligent Building Life-cycle Diagnosis and Optimization technology that enhances the energy efficiency of buildings through the effective diagnosis and optimization of their central air-conditioning systems and control systems.

Energy efficiency is becoming increasingly critical to sustainable urban development, and this advanced technology and software can be applied to diagnosis and optimization at various stages of the entire building life-cycle, from design and construction to testing/commissioning and operation. Central air-conditioning systems normally account for 50% or

more of a building's total operating energy. Energy consumption could be reduced by 20 to 30% through the better diagnosis, commissioning, and optimization of energy system and their control systems.

The technology is currently in use in one of Hong Kong's landmark buildings, the International Commerce Centre (ICC), and a few others. It has helped the ICC to save 7 million kWh of energy annually, which is equivalent to about 18% of its air-conditioning system energy consumption.

This PolyU invention won an innovation Award in the China International Industry Fair 2010, and a related research study entitled "Enhancing Accuracy of Air-Conditioning Load Measurement Using the Data Fusion Technique" was granted an Outstanding Paper Award in the 2010 National Conference on HVAC and Refrigeration.

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