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機電工程署 EMSD

Seminar on Experience Sharing of Retro-commissioning for Commercial Buildings between Hong Kong and Mainland

Date: 13 September 2017 (Wednesday)

Time: 4:00pm-6:00pm (Registration starts at 3:30 pm)

Venue: BEC Auditorium, G/F Jockey Club Environmental Building, 77 Tat Chee Avenue, Kowloon Tong, Hong Kong

Fee: Free of charge

Rundown:

3:30pm	Registration
4:00pm	Opening Remarks **Ir KONG Ka-wah, Senior Engineer, Electrical and Mechanical Services Department**
4:05pm	Photo-taking
4:10pm	Session 1 (Language: Cantonese) **Ir Brian LEUNG Hon-man, Engineer, Electrical and Mechanical Services Department** *Topic: An introduction of Retro-commissioning and Technical Guidelines*
4:40pm	Session 2 (Language: English) **Dr Qingpeng WEI, Associate Professor, Building Energy Research Center, Tsinghua University, Beijing** *Topic: Commissioning in Commercial Buildings and MEP Systems for Energy Efficiency: Challenge with Opportunity in China*
5:40pm	Q&A Session
6:00pm	End of Seminar

Please click ***here*** to register

Session 1 (Language: Cantonese)

Topic: An introduction of Retro-commissioning and Technical Guidelines

Speaker: Ir Brian LEUNG Hon-man, Engineer,
Electrical and Mechanical Services Department

Abstract:

More than half (55%) of Hong Kong's total annual energy end-use is in the form of electricity consumption and buildings take up about 90% of our total electricity consumption. It is imperative to reduce the use of electricity in buildings to help us combat climate change. At the same time, Hong Kong has the highest building density in the world, of which around 60% of the buildings are over 25 years old. The saving potential of these buildings would be significant.

Electrical and Mechanical Services Department (EMSD) is actively pursuing the cost-effective program of "Retro-commissioning" (RCx) to further encourage energy conservation works in existing buildings. RCx is a cost-effective and systematic process to periodically check an existing building's performance. Through the use of data tracing, professional analysis and diagnosis, RCx helps to develop a scientific based optimisation scheme and make continuous improvement.

EMSD has developed Technical Guidelines on Retro-commissioning in order to drive the wider spread of RCx in existing buildings. The paper would introduce the framework of technical guidelines and include some technical approaches from real cases, which explain the general RCx process and focus, and the energy-saving improvement proposals for building owners and the industry. We hope that both public and private sectors can work together to improve overall energy performance of buildings and towards green infinity.

Speaker's Biography:

Ir Brian LEUNG Hon-man, is an engineer of EMSD, HKSAR Government. He has over 16 years' experience in building services design and maintenance management of a wide variety of commercial and residential buildings. Ir LEUNG has been actively involved in recent years in the enforcement on of the BEEO and its codes. He has also involved in the formulation of Technical Guidelines on Retro-commissioning and is now actively involving in promotion of retro-commissioning in Hong Kong.

Session 2 (Language: English)

Topic: Commissioning in Commercial Buildings and MEP Systems for Energy Efficiency: Challenge with Opportunity in China

Speaker: Dr Qingpeng WEI, Associate Professor
Building Energy Research Center,
Tsinghua University, Beijing

Abstract:

There are tremendous challenges on energy and environmental issue in China since today 1/5 of energy globally is consumed in China, consequently, almost 1/4 of Green House Gases (GHGs) worldwide is emitted from China. Among them, around 24% of energy is consumed in operating buildings for HVAC, lighting, appliances, etc. Energy efficiency in buildings is well accepted as a key to sustainability for future especially that China is still on a fast lane of urbanisation.

Since that, concept of green building is also well known and various technology and products labelling with "energy efficiency" are installed in buildings now a days in China. However, the actual performance and operational system efficiency or energy consumption are not as good as expected. People realised that they need a KEY to run their buildings and systems properly rather than to put a Farrari as a furniture in their sitting rooms. Commissioning (Cx) is expected as the KEY.

Generally, requirement of Cx can be illustrated as four situations as following:

(A) Cx during operation: the goal of carrying out a Cx is to evaluate actual energy performance during operation and disclosing energy saving potentials. Suggested action plan and estimated savings is definitely favorable as the fruits of Cx.

(B) Continuously Cx afterwards: the goal is to keep evaluating the energy performance of buildings and systems to ensure that they are always working on the proper way with a high efficiency. BMS data and KPI can make continuously Cx effectively.

(C) Test and Cx (T&C) after installation: the goal is to ensure that mistakes in design stage and installation stage will be disclosed and corrected so that buildings and systems can be operated properly with high performance and efficiency from the first day of occupation. T&C should focus on equipment level, system level and BMS level respectively.

(D) Cx from the first day of design: the task of Cx for new building is to set the target of energy consumption and system efficiency of future routine operation, and, to evaluate design, tender criteria, etc. to make sure that the target of energy consumption and system efficiency will be not be abandoned during the whole process of building construction.

Case study and examples of applying Cx in different stages for different type of buildings and systems including commercial complex, hotels, offices, etc. will be presented during the talk and look forward to further discussion on Cx.

Speaker's Biography:

As the team leader on energy efficiency in commercial buildings research, Dr WEI established an on-line energy monitoring and benchmarking system of commercial buildings through detailed metering data. By this monitoring and benchmarking system, current situation, characteristics and saving potentials of energy consumption for HVAC, lighting, office appliances in commercial buildings are clearly disclosed with real time energy consumption data. Therefore, Dr WEI develops data-driven model and data mining methodology for energy consumption in commercial buildings.

Dr Qingpeng WEI received his B.Sc., M.Sc., and Ph.D. degrees in building services engineering from Tsinghua University. Dr WEI initiated his research in building energy efficiency (BEE) in 1996. And he was involved in lots of international cooperation projects on BEE, including UNDP-GEF funded CHINA End-use Energy Efficiency Project, World Bank funded CHINA building Energy Efficiency Study etc. Currently, he is leading a research team on energy efficiency in large-scaled commercial buildings which have the highest electricity use intensity among all kinds of buildings in China. Dr WEI and his team have accomplished energy diagnosis and Retro-/ Re-commissioning in more than 300 buildings in China, Hong Kong SAR, USA and Japan. Dr WEI was also invited to visit and investigate energy data of commercial buildings in France, Belgium, Netherland, Germany, etc. In addition, with his effort, low-cost retrofitting techniques including control strategy optimisation, energy efficiency oriented FDD, have been implemented in about 50 commercial buildings which gained more than 30% of energy savings. Meanwhile, he is involving deeply in IEA ECBSC annex 53 as a subtask leader studying on human behavioral impacts on total energy use in office buildings and ISO TC 163/205 JWG for a standard way of presenting energy use data in buildings.