

Effective Implementation of Building Energy Management in Mega-sized Properties Portfolio

Published on Monday, 24 Aug 2020



Introduction

90% of electricity consumed in Hong Kong is used in buildings, of which over 60% are commercial buildings. Mega-sized properties consume a significant proportion of electricity and hence if Hong Kong is to reach its decarbonisation targets, it is clear that this sector must play an important part in energy saving.

While building services engineers may provide efficient operation and maintenance regimes for mega-sized properties, it is observed that a top-down management approach from the corporate board room downwards is required to provide an effective energy management strategy.

Role Model of Building Services Engineer by “cats.pdf Concept”

With this in mind, building services engineers have started to develop new and additional roles to facilitate a new management style required to effectively implement energy management in properties. This can be characterised by the “cats.pdf Concept”:-

- “**c**” stands for “counsellor” who pacifies staff members through excellent leadership skills;
- “**a**” stands for “accountant” who formulates a budget plan for each fiscal year so as to maintain a high degree of building services system reliability and energy saving targets implementation;
- “**t**” stands for “translator” who simplifies technical terminology for detailed explanation to management;

- “**s**” stands for “salesman” who sources and promotes advanced building energy technology to management;
- “**p**” stands for “project manager” who manages project upgrading works and energy conservation projects;
- “**d**” stands for “building doctor” who diagnoses and cures abnormal operations building services equipment; and
- “**f**” stands for “fireman” who tackles emergency breakdowns and handles disaster management.

This concept has been developed to guide building services engineering teams to help ensure an optimised energy efficiency together with a high degree of system reliability, and most importantly, to monitor the correct application and maintenance of safety standards.

Building services engineers must recognise that there is a high pressure in corporate management for balancing balance profitability and corporate social responsibility (CSR), while promoting the idea that both can coexist in a positive manner. Naturally, compromising between capital investment and energy saving payback may have to be reached in both the short and longer terms. Building services engineers must also keep abreast of local regulations and incentive schemes which may help achieve such a compromise.

Energy Management Strategies

For instance, an extensive solar photovoltaic (PV) system was installed in a huge building complex in Tsim Sha Tsui in 2014. The payback period against the initial investment was estimated to be more than 50 years but the owner was keen to implement the installation in order to support its CSR aims and strategy. However, with the launch of the Feed-in-Tariff (FiT) Scheme in 2018 by the HKSAR Government and local utility companies, the payback period against initial investment of PV installation was significantly reduced to between 10 and 12 years. It is hoped that this example in the commercial sector will encourage other mega-sized properties to consider installing renewable energy solutions.

Retro-commissioning (RCx) is another technique developed in recent years to further trim down energy use both in newer buildings in operation for less than 10 years as well as in older establishments, some of which can be over 50 years old. This energy management technique seeks to “re-commission” and “monitor” existing building services systems in their operation as well as to review the effectiveness of maintenance regimes. Modern techniques such as monitoring and collecting big data together with analysis using cloud computing and artificial intelligence (AI) may be used to determine if the existing systems are operating in accordance with the specification and if that operation is still appropriate for the current building use. It may also identify anomalies in operation, which can suggest improvements in maintenance programmes. Furthermore, RCx may demonstrate that the implementation of demand

side management potentially using advanced techniques such as a centralised cloud platform and the Internet of Things (IoT) connectivity may bring benefit to the building management system. Corporate management may even consider having a dedicated energy management sub-team in the technical department for achieving significant savings that may far exceed the costs of setting up and running such a team.

Building Sustainability by “ABC Concept”

Team development and energy awareness partnership between landlords and tenants are also essential in managing any mega-sized properties. The “**ABC Concept**” which comprises “**A**bsorb Talent”, “**B**usiness Continuity” and “**C**hanges in Behavior” can help stimulate growth in these areas. Through the effective implementation of best practice and knowledge sharing, the industry could absorb new talent enabling career development in the field; that is “**A**”. With the achievement in building sustainability and system reliability, tenants of office and shopping mall could stably continue and operate their business without any interruption; that is the Business Continuity, **BC**. Even more important are Behavioral Changes; that is another **BC**.

The key is reviewing old technology and techniques, and seeking to apply new technology and approaches to novel conceptual ideas. It is essential to learn from others, both in Hong Kong and overseas, and embrace positive changes, i.e. the ABC Concept.

Combating COVID-19 by Building Services Engineering Professionals

In these challenging times, building services engineers have made significant contributions in safeguarding building users against the spread of COVID-19 by upgrading building services system and its disinfection and UV sterilisation techniques for escalators, elevators and HVAC systems. Review of air filtering system is essential to ensure installation of appropriate standard of MERV rating of air filters.

Professional Reputation of Building Services Engineer

The building services profession is dedicated to serving the community with professionalism, dedication and perseverance, and providing quality service to maintain efficient building operations and maintenance from day to night, in health, safety and optimisation of energy consumption and cost.

By Ir K F YEE and Ir Winnie LO from the Building Services Division of the HKIE

Original article posted on cpjobs.com: <https://www.cpjobs.com/hk/article/effective-implementation-building-energy-management-mega-sized-properties-portfolio>