

## Building Services Engineers – To Build and to Serve

Published on Monday, 28 Mar 2022



With more than 7,800 high-rise buildings and its renowned skyline, Hong Kong is one of the “tallest” cities in the world. Although this is the joint effort of many people, we are proud of the contributions made over the years by Building Services Engineers.

Back in the “old days” 70 years ago, when lifts and escalators were uncommon, air-conditioners were a rare luxury, water was scarce and the lives of residents were constantly threatened by fire, it would have been hard to imagine how fast the city could improve. Nowadays, lifts and escalators are commonplace, air-conditioners are available in almost every household, water supply at a comfortable pressure and is rarely interrupted, and our lives are in far less danger from fires as almost all our buildings have automatic fire alarm systems. All these improvements are the result of tremendous efforts by generations of Building Services Engineers who have devoted themselves to advancing the facilities of our built environment.

Building Services Engineering is an engineering discipline concerned with the design, manufacturing, installation, commissioning and maintenance of mechanical and electrical services in buildings. The core elements include Heating, Ventilation and Air-Conditioning (HVAC), Electrical Services, Fire Services, Utility Services, Plumbing and Drainage Services, Vertical and Transportation Services, Lighting Engineering and Project & Engineering Management.

With such a multi-disciplinary nature, Building Services Engineers have a wide range of practical skills which include, *Planning and Master programming; Site Appraisal and Feasibility Studies; Building Services System Design and Analysis; Tendering and Contract Administration; Sub-contracting and Installation; Testing and Commissioning; Manufacture and Technical Sales; Operation and Maintenance; Safety and Quality Assurance; Education and Training; Research & Development; and Project Management.*

This year is the 35th anniversary of The Hong Kong Institution of Engineers - Building Services Division. Over the past decades, the division has always responded to the needs of our society. When we heard the call for a safer and more hygienic city, our engineers joined forces with the Government to continuously revise the Code of Practice for Minimum Fire Service Installations and Equipment and a Code of Practice for the Prevention of the Legionnaires’ Disease. And when it came to better indoor air quality, our members introduced the latest technology and good practices, such as the proper design of ventilation systems and real-time pollutant monitoring so that better IAQ (Indoor Air Quality) could be achieved.

We also heard the call for a greener city, and our engineers work extraordinary hard not just to fulfil the requirements of the Buildings Energy Efficiency Ordinance, but also to exceed them by applying cutting-edge technologies including Immersion Cooling, Solid State Refrigeration, and Building Information Modelling for Energy Management.

Besides contributing to the advancement of our city, the Division has also stood shoulder to shoulder with Hong Kong people during many difficult times. In 2003 during the SARS outbreak, for example, we formed expert groups to immediately and successfully propose simple and efficient ventilation designs to increase the number of hospital beds in Hong Kong with negative pressure from 177 in the Spring of 2003 to a total of 1324 by the Winter of 2003.<sup>1</sup>

During the COVID-19 outbreak in 2020, our engineers again showed their concern for society. Some of our members worked closely with the Government's anti-epidemic expert advisory group and accompanied them on site visits whenever there were suspected cases concerning ventilation or drainage issues. Some of our members provided advice and technical support to the Government and Hospital Authority for the efficient construction of emergency quarantine centres, negative pressure wards and mobile, cabin hospitals, so that patients could receive appropriate treatment within the shortest period of time.

Our members also served on the Working Group for "Requirements in Air Change and Air Purifiers in Dine-in Restaurants", so their professional knowledge and experience could help create a safer environment for diners. The HKIE-Building Services Division also formed a joint taskforce with other professional organisations to provide advice and recommendations to the public and the property management sector on improvements to drainage systems that would help reduce the risk of COVID-19 contamination. Posters in traditional Chinese, English, Nepali and Filipino have been prepared on this topic and can be downloaded from the publication section of [www.hkie-bsd.org](http://www.hkie-bsd.org).

Bearing in mind our professional responsibility to serve the underprivileged and nurture our youngsters, our members have also actively participated in voluntary work, include visiting homes for the elderly to conduct electric safety inspections and basic maintenance. Our members also conduct numerous careers talks for secondary and tertiary students each year to encourage them to consider becoming registered professional engineers in the future. The HKIE-Building Services Division has also set up scholarships to support building services engineering students in tertiary institutes.

Looking forward to the continuous development of our beloved city, we can see that more Building Services Engineers will be needed and there are bright career prospects ahead. We also believe that our Building Services Engineers will continue their excellent contributions to our city with our core philosophy: To Build and To Serve.

Reference:

1. Li, Y. G., Leung, M., Seto, W. H., Yuen, P. L., Leung, J., Kwan, J. K., & Yu, S. C. T. (2008). Factors affecting ventilation effectiveness in SARS wards. *Hong Kong Medical Journal*.

*By Ir Kevin CHOW from the Building Services Division of the HKIE*

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