

## SBS5498 Final Year Project 2 (Applied Research Project)

<http://ibse.hk/SBS5498/>

### Suggested Topics from Supervisors (2018-2019)

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Title:	Comparative study of green building assessment standards between Hong Kong and U.K.
Description:	In current situation of energy shortage and global warming worldwide, green building has become a new building style that fully integrated energy-saving and environmental friendly building design and operation. The green buildings are developing rapidly in recent years, during which various green building assessment standards have evolved in different countries. This study comprehensively compares two typical green building assessment standards, i.e., Beam+ in Hong Kong and BREEAM in U.K. in order to identify the gaps in scope between the two assessment standards and discuss the future trends of green buildings for better design and certification planning.

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Title:	Comparative study of different domestic water supply schemes in high-rise buildings
Description:	High-rise buildings, a trend in density populated cities around the world, increase the difficulty for domestic water supply. This study aims at evaluating five water supply schemes with different arrangement of water tanks and booster pumps. The five water supply schemes include single booster system, zone-divided system, roof tanks, series-connected system with intermediate break tanks, and a series-connected system. The computational calculation model of each water supply scheme is established based on fluid mechanics theory. Comparisons among the five water supply schemes are made through tech-economic analysis. Some recommendations are therefore proposed for high-efficient water supply in Hong Kong.

Title:	Feasibility study of using variable frequency pump for domestic water supply in high-rise buildings in Hong Kong
Description:	Hong Kong is a high-density metropolis with many high-rise buildings. The high-rise buildings increase the difficulty for domestic water supply as well as the energy consumption for delivering the water. In common practice, a water tank assisted by a pressurized pump with constant power is used for domestic water supply in high-rise buildings. However, water tanks involve disadvantages such as higher capital costs due to the tank set-up and greater structural requirement, high operating cost, difficulty in maintaining tanks and hygienic problems. Therefore, the domestic water supply by using variable frequency pump is suggested. It can solve the problems of water contamination and reduce construction space. A feasibility study is conducted by establishing a computational model of water supply system using variable frequency pump based on fluid mechanics theory. Economic analysis is conducted for both the new system and traditional system considering the capital cost, maintenance cost and operational cost through the whole life cycle.