ABSTRACT

The perception that construction related jobs is dirty, tough and dangerous resulted in the shortage of skilled labour and heavy reliance on foreign workers. This is the major dilemma that faces the Singapore construction industry. While contractors face problem of labour shortage, developers always face problems of cost, time and quality. Industrialisation such as automation and robotics application is one of the solutions that can minimise these problems.

The construction sector is highly dependent on the latest technological advances in a variety of fields. The SMART system that has been successfully implemented in Japan proves that it can increase productivity. Variant from this system is the new SMART system, which has a similar concept and currently being used in the construction of the new HDB centre. The main objective of the study is to investigate whether the above construction method is appropriate in terms of time and quality and to study the advantages and disadvantages of the system.

Surveys are conducted with the users and non-users of the system to solicit their views on the perceived benefits that the new SMART system offers. Interviews are also conducted to correspond with the result of the survey. Analysis and findings are grouped into subjective (i.e. survey) and objective (i.e. observations) discussions.

The analysis shows that the new SMART system that provides a proper linkage of the lifting machine and the site factory helps to increase job effectiveness. It also proves that long term planning for an effective usage of manpower and equipment with the combination of prefabricated components produces good results, shortens construction period and enhances overall cost effectiveness of the project. The use of the SMART system is another breakthrough in the continuous innovation in the construction industry.