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An Analytical Literature: Strategic Improvement of Sustainable Building Performance Tool for Malaysia's Higher Institutions

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Abstract

The growing populations of students to higher institution is increasing year by year, therefore it is importance to ensure that the building is well functioned throughout its lifecycle. Inevitably, the educational process may be interrupted if the building experience a poor performance conditions, thus affect the students' academic achievement. Many studies have proved that there is significance in providing holistic performance in educational buildings that able to improve the students' learning environment. This study is aimed to provide a new rating tool of building performance, which is hoped to be used for Malaysia's higher educational buildings towards students' learning improvement.

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1. Introduction

According to Fien et al. (2010), back in 1990 there are several universities signed a 10-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities. Inevitably it shows that sustainability in universities is vital to prolong the education system. Higher learning institutions generally occupy large land area and a growing populations year by year. As stated by Olanrewaju (2010), transmitting knowledge and culture is one the business agenda of universities. Various activities which are not limited to education and research activities alone is conducted in the campus involving students; as the dominant occupants of higher institutions. Therefore, the academic and non-academic activities resulted in two significant ways which are direct and indirect impacts on the conditions, environment and sustainability. Wong and Jan (2003) stressed that building evaluation is the first priority as it is imperative to know the status quo of the building before one can effectively predict future building performance. Seeing this importance, the evaluative criteria derived from the occupants in educational buildings is need to be measured in terms of quality of building facilities for its general condition and suitability for education.

In the current situation where people concerns about building performance and sustainability, occupants demand to have priority in terms of comfortability to use and utilize the facilities and services as it must be fit for purpose of the user. The educational process and learning activities may be interrupted due to poor building conditions. Hence, there is a need to adopt the application to evaluate the performance of technical aspects of higher institutions. For Malaysia's context, to proposed appropriate framework, analytical study must be reviewed from the experiences of other countries such as New Zealand, the United States of America and Canada regarding strategies that they adopted to address performance evaluation and its impact on students' learning efficiency. Test is needed to seek the relevance of the proposed strategies to the needs of Malaysia. Therefore, this study is purposely conducted to propose a new guideline to evaluate building performance as a rating tool, by using behavioral suitability. This study is limited to the end-user of the higher educational building, i.e. the students, in 5 public institutions (IPTA) in Malaysia. The aspect of building performance that needs to be drawn is generally in terms of technical aspects; i.e. the superstructure elements and the architectural elements.

2. Issue Statement

The learning environment in the higher institutions is generally different than the primary or secondary education. Every higher institution is built to serve the tertiary education to the students based on the various programmes offered and therefore, the design and facilities provided in the higher institutions must suit the objectives of the education programmes. However, the assessment of the building condition does not explicitly address the educational inadequacy of the academic buildings that is the relationship between the physical condition of the schools and the various educational goals and activities that take place within the building (Doidge, 2009). Problems in educational buildings include various aspects such as building designs, technical building elements, rooms, facilities, safety aspects, indoor and outdoor environmental problems and noise pollution. According to Altan (2010), the increasing number of students and learning activities in higher institution has contributed to the inefficient of energy use and these may decrease the total performance system of the building year by year.

There are many terms used in evaluating the building performance, however, O'Sullivan et al. (2004) asserted that "most building performance assessment is done at the design stage of a building through the use of simulation tools, some assessment is carried out at the construction and commissioning stage by means of commissioning tests, but thereafter, there is little or no assessment carried out at the operation

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