World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:12, No:04, 2018

The Development of Assessment Criteria Framework for Sustainable Healthcare Buildings in China

Authors : Chenyao Shen, Jie Shen

Abstract : The rating system provides an effective framework for assessing building environmental performance and integrating sustainable development into building and construction processes; as it can be used as a design tool by developing appropriate sustainable design strategies and determining performance measures to guide the sustainable design and decision-making processes. Healthcare buildings are resource (water, energy, etc.) intensive. To maintain high-cost operations and complex medical facilities, they require a great deal of hazardous and non-hazardous materials, stringent control of environmental parameters, and are responsible for producing polluting emission. Compared with other types of buildings, the impact of healthcare buildings on the full cycle of the environment is particularly large. With broad recognition among designers and operators that energy use can be reduced substantially, many countries have set up their own green rating systems for healthcare buildings. There are four main green healthcare building evaluation systems widely acknowledged in the world - Green Guide for Health Care (GGHC), which was jointly organized by the United States HCWH and CMPBS in 2003; BREEAM Healthcare, issued by the British Academy of Building Research (BRE) in 2008; the Green Star-Healthcare v1 tool, released by the Green Building Council of Australia (GBCA) in 2009; and LEED Healthcare 2009, released by the United States Green Building Council (USGBC) in 2011. In addition, the German Association of Sustainable Building (DGNB) has also been developing the German Sustainable Building Evaluation Criteria (DGNB HC). In China, more and more scholars and policy makers have recognized the importance of assessment of sustainable development, and have adapted some tools and frameworks. China's first comprehensive assessment standard for green building (the GBTs) was issued in 2006 (lately updated in 2014), promoting sustainability in the built-environment and raise awareness of environmental issues among architects, engineers, contractors as well as the public. However, healthcare building was not involved in the evaluation system of GBTs because of its complex medical procedures, strict requirements of indoor/outdoor environment and energy consumption of various functional rooms. Learn from advanced experience of GGHC, BREEAM, and LEED HC above, China's first assessment criteria for green hospital/healthcare buildings was finally released in December 2015. Combined with both quantitative and qualitative assessment criteria, the standard highlight the differences between healthcare and other public buildings in meeting the functional needs for medical facilities and special groups. This paper has focused on the assessment criteria framework for sustainable healthcare buildings, for which the comparison of different rating systems is rather essential. Descriptive analysis is conducted together with the cross-matrix analysis to reveal rich information on green assessment criteria in a coherent manner. The research intends to know whether the green elements for healthcare buildings in China are different from those conducted in other countries, and how to improve its assessment criteria framework.

Keywords : assessment criteria framework, green building design, healthcare building, building performance rating tool
Conference Title : ICSAUD 2018 : International Conference on Sustainable Architecture and Urban Design
Conference Location : Boston, United States
Conference Dates : April 23-24, 2018