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Green Building Design Concepts of Healthcare Facilities on the Orthopedic Hospital in the Tropics

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Abstract

The issue of Global Warming is rapidly evolving, so every healthcare facility requires the Green Building Concepts. The Orthopaedic Hospital of Professor Dr. R. Soeharso is in Surakarta, Indonesia. It needs strategies on the green building concepts application. The purposes of this study are green concepts consisting of functional program, additional capacity of hospital services, and marketing strategies based on clinical approaches. Market share figures will be able to predict the number of patients coming up by the year of 2020. By this method, the researchers will be able to find out some essential facilities that should be built by the hospital.

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Keywords : Green building concepts; ortopaedic hospital; services capacity

1. Background of study

The Orthopaedic Hospital of Professor Dr. R. Soeharso continues to grow because of the additional capacity of services from year to year. Development of a hospital requires a systematic and rigorous method consisting of various interrelated aspects of hospital. Development of the hospital should be able to realize the Quality of Life. In addition, the development of hospital services is closely related to the education, economic, demographic, and socio-culture which are aspects of many local factors that influence the hospital (*Somboonwit, N., & Sahachaisaeree, N., 2012*). The Hospital must be

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environmentally oriented. Therefore, it needs implementation of a sustainability concept. In addition, the sustainability concept is necessary in responding the issues of green hospital which concerns with several aspects such as the use of natural resources, the development of alternative energy and the utilization of energy saving system as well as the efforts to minimize the emission of carbon dioxide gas (CO₂) in both of planning and implementation process. The orthopaedic hospital of Prof. Dr. R. Soeharso is an Orthopaedic and Medical Rehabilitation Services Hospital in Indonesia. The Indonesian Minister of Health has transformed the hospital into an A-Class Hospital specializing in Orthopaedic and Traumatic fields by Decree number: 839/VII/2007 dated on 20th July 2007 and the Indonesian Ministry of Health Regulation number: 256/III/2008 dated on 11th March 2008. Furthermore, the Strategic Business Plan of the orthopaedic hospital for the year of 2008- 2012 confirmed that based on the results of the 'Strength, Weakness, Opportunity, and Threat' analysis, the hospital was in 'Second Quadrant' condition. The condition mentioned that the orthopaedic hospital should implement and conduct strategies to develop with the term of 'Rapid Growth' (The final report of the orthopaedic hospital master plan, 2009). Some disadvantages often appearing in the hospital are connection between facilities that have not been well integrated, the lack of patient's satisfaction and the lack of capacity in several hospital installations. Sustainable concepts in buildings are important for the patients' comfort in facing their illness. In the opposite situation, they will be discomforted because of both the burden in unsustainable physical environment and the burden of illness (Jain Malkin, 2002). Based on those facts, the hospital tends to have many constrains related to those disadvantages and thus the hospital requires a study of the sustainability concept in a green hospital design.

1.1. Research question

The question of this study is how to design the layout, infrastructure facilities of a Green Hospital, medical facilities with the development of science and technology as well as how to design comprehensive spatial planning and buildings of the orthopedics hospital having concepts of green hospital that consider the layout of buildings, healthy outdoor spaces, infrastructure, local town planning regulations, and the elements of an integrated health and behavior system.

1.2. Research aim

The realization of Strategic Comprehensive Design reference having concepts of green hospital conducted by reviewing the technical regulations in both internal and external aspects of the orthopaedic hospital, such as government regulations, especially the local region regulation, as a territorial services of the orthopaedic hospital. Reference design considers not only the aspects of human behavior hospital but also the integrated design process on sustainability concept associated with patients, medical staff, staff outcomes and physical environment.

2. Sustainability and green concept literature review

The concept of the Green Hospital Sustainability requires integration consisting of several multi disciplinary professionals. The integration of the whole is called the Integrated Design Process and starts from planning, implementation to operational buildings (Jain Malkin, 2002). The Integrated Design Process makes a sustainable, green and high performance building which are designed, constructed, and operated to make the world a better place by improving the environment through nurturing lives, restoring environmental assets, and offering inspiration by drawing on the collaborative experience of a multi disciplinary team of professionals. Furthermore, the Integrated Design Process generates sustainable

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