

ABSTRACT

Green building is a kind of eco-friendly building, in which the usage of resources such as energy and water, are being done efficiently. To achieve that condition, it requires rating process with criteria within, which one of them is energy efficiency. Rating system applied in Indonesia, GREENSHIP, also has energy efficiency criteria called Energy Efficiency Conservation 1 (EEC 1). Other than that, there is Excellence in Design for Greater Efficiencies (EDGE), made by International Finance Corporation, which is the international rating system applied in more than one hundred fifty countries, including Indonesia. This research compared three energy efficiency calculation methods. Those methods are; energy modelling (EnergyPlus), GBC Indonesia Worksheet, and EDGE (Energy Efficiency Measures). Energy efficiency calculation in those methods calculate the energy efficiency index (kWh/year.m²) difference between baseline building and designed building. The objects in this research are one hotel building which has 11 floors and three office buildings which have 12, 47, and 17 floors for each building called A, B, C, and D building. The energy efficiency (kWh/year.m²) result shows that all of those methods give different result, which the result using EnergyPlus have the lowest value (average: 2.68%) and the result using EDGE have the highest value (average: 38.78%). Furthermore, using EnergyPlus, all of the buildings are not able to get any point in GREENSHIP EEC 1. Whilst using worksheet GBC Indonesia, all of the buildings get 15, 5, 1, and 13 sequently from A building to D building. Those differences appear because of the different characteristic of each method. So, it can be concluded that all of those methods give different energy efficiency result and also both of optional methods in GREENSHIP give different point of GREENSHIP EEC 1.

Keywords: *green building, energy efficiency, GREENSHIP, EDGE.*