

## ABSTRACT

Based on data from the Green Building Council of Indonesia, more than one-third of CO<sub>2</sub> gas emissions worldwide are generated by buildings, it has an impact on the environment such as global warming, ozone layer depletion, and accumulation of waste. The concept of Green Building is considered very necessary to overcome global warming and increase energy efficiency. In the process of building the Green Building concept, it requires a relatively high cost when compared to conventional buildings. Therefore, the Life Cycle Cost (LCC) method is used to determine the total cost needed, the optimal cost of the building, the economic age of the building, the number of crew maintenance and the level of energy efficiency. The analysis using the Lifecycle Cost method requires several related costs such as Initial Costs, Maintenance Costs, Energy Costs, Replacement Costs, and Utility Costs. The analysis was conducted using the Present Worth Analysis method within a period of 50 years from the start of building construction until 2062. Based on data processing using the Life Cycle Cost method, the optimal cost of the green building concept building is IDR 3,970,231,056 with the economic age of the building being 30 years, the amount the optimal maintenance crew is 4 people and the level of intensity of energy consumption is very efficient.

*Keywords: Green Building, Life Cycle Cost, Economical Age, Present Worth Analysis, Energy Efficiency, Global Warming.*