

ABSTRACT

One of the solutions to the high emissions and energy consumption in the building sector is energy efficiency and conservation under green building principles. This has been implemented by DPD Golkar Jakarta Office through a passive design strategy on the building envelope related to thermal gain and natural lighting. Therefore, this study focuses on assessing the building's performance in meeting the OTTV and natural lighting levels based on GREENSHIP green building criteria and providing recommendations on retrofitting techniques. Data were obtained using a quantitative approach through observation and literature study. OTTV was calculated using the Jakarta OTTV Calculator while the natural lighting level was measured using a lux meter. Results showed that the OTTV calculated reached 73,86 W/m², so it did not meet the maximum requirement of 35 W/m² and the GREENSHIP EEC P2 criteria: OTTV Calculation. Meanwhile, the natural lighting level has met the GREENSHIP EEC 2 criteria: Natural Lighting, where the minimum of 300 lux lighting intensity has reached 55% of the building's active space. Thermal retrofits were carried out by changing the type of glass and reducing the Window to Wall Ratio. Retrofit by changing the type of glass to Stopray Vision 3IT 6 mm managed to reduce the OTTV to 22.08 W/m² while retrofit by changing the type of glass to Sunergy Sigma Blue Green 8 mm and reducing the WWR to 38.28% managed to reduce the OTTV to 34.44 W/m².

Keywords: *Energy Efficiency and Conservation, GREENSHIP, Green Building Retrofit, OTTV, Natural Lighting*