

ABSTRACT

Indonesia's conditions precise on the equator makes Indonesia has a tropical climate, although in the room sometimes we can feel hot temperatures. In addition to using air conditioning and light, increase the energy consumption of buildings. More sunlight shine the room can making a better lighting system, but the consumption of cooling loads increased because the temperature in the room becomes high. However, it can be solved by finding the right exposure of the window dimensions to natural lighting by taking into account the energy of the building produced. The simulation object are the type of shop building and house building the floor area is ± 70 m² and ± 600 m², with subject variation of window opening 20% to 80%. The building will be combined with three different types of glass materials with U-Value, SHGC, VT and added a combination of orientation of the north, west, east and south. The result of the research shows that, the type of shop building saving energy obtained by Glass 1 with 40% window opening area for west orientation, 40% for East orientation, 30% for North orientation, and 40% for South orientation. While the best type of energy-saving District building is obtained by Glass 1 with 70% window opening area for orientation of West, East and North while orientation of South 80%.

Keywords: Natural Lighting, Window to wall ratio, Visible Transmittance, SHGC, U-Value