
**THE EFFECT OF SET POINT TEMPERATURE ON COOLING LOAD
IN NIGHTTIME COOLING FOR INSULATED BUILDING**

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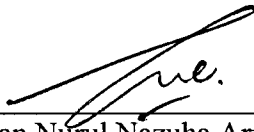
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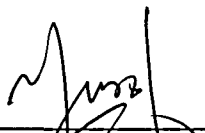
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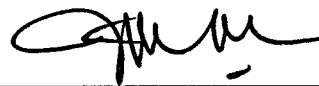
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ABSTRACT

THE EFFECT OF SET POINT TEMPERATURE ON COOLING LOAD IN NIGHTTIME COOLING FOR INSULATED BUILDING

In a tropical country like Malaysia, there is a dire need of installing air-conditioning in order to have a more comfortable ambience temperature. However, there are growing concerns about the increasing energy consumption in the world and Malaysia particularly. In order to achieve both comfortable lifestyle and energy conservation at the same time, mostly believed and held upon through studies and research done, the right set point temperature of the air conditioning is one of the solution. Therefore this study is aiming to further complement the studies and research done, by evaluating the benefits of set point temperature during nighttime using field data, and is compared and backed with computer simulation data using Energy10. The field study was carried out at energy efficiency test cell located in UITM Shah Alam, measuring the effect of set point temperature on cooling load in nighttime cooling for insulated building in 5 days with 10 minutes interval. Test cell was equipped with insulation at ceiling with roof pitch angle at 15° and mineral wool insulation with the thickness of 75mm and 100mm for fiberglass insulation and was installed with a 950W split unit air conditioning system using 3 different temperature-set points which are 23°C, 24°C, and 25°C. The results for both field and computer simulation data gave a similar pattern showed in this study, which is that higher set point temperature will consume higher energy and cost, despite the difference in value in terms of the energy consumption between field and computer simulation. The total daily energy consumption recorded for set point temperature 23°C was 18.412kWh and 3.364kWh for 25°C temperature set point via field data. Computer simulation gave a total daily energy consumption of 77.147kWh and 45.247kWh for 23°C and 25°C respectively. The findings would be useful to attain the very objective of this study that is to consume energy more efficiently and at the same time, have a comfortable sleep at night.