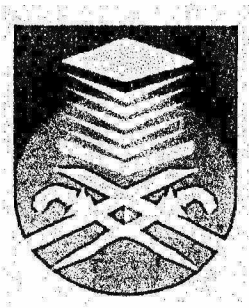

FACULTY OF MECHANICAL ENGINEERING
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FINAL YEAR PROJECT

COOLING LOAD MINIMIZATION AND THE THERMAL COMFORT IN TYPICAL STRUCTURE

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ABSTRACT

Indoor climate should be adjusted to human need by opening windows or using fans in summer. However systems are capable of being varied to meet almost any comfort or industrial demand, anywhere on earth, with precise automatic control. Air conditioning, in almost every city and town for building, is now increasingly popular all over the world and is regarded as a commercial and business necessity in early all tropical nations. It is no longer true, for air conditioning engineers, contractors, manufacturers and technicians are modifying indoor weather everywhere. Consider for a moment the consequences that would result if all air conditioning systems were to stop. Not only would temperature and humidity conditions become intolerable, but industrial production would be adversely affected and activities involving computers, electronics, aircraft, precision manufacturing, nuclear power and optics in fact most areas of modern progress would come to halt. Today, in business, industry, schools, hospitals, hotels, theaters and homes air conditioning is no longer a luxury but an essential part of modern living.

The aims of our project are to provide a logical study of the physical and engineering factors which affect the cooling load and to give sufficient example to show their practical application. In addition, a simulation by Phoenics software is used to study the air velocity and temperature distribution within a classroom whereby the fans height are varied to investigate the optimum level that provides suitable thermal comfort. A study on temperature distribution also was carried out to obtain the time needed for a room to be cooled with the effect of solar transmission through glass windows.