

ENERGY EFFICIENT AND ALTERNATIVE AIR DISTRIBUTION
SYSTEM FOR DEWAN SRI BUDIMAN

PRESENTED TO :

THE DEPARTMENT OF MECHANICAL ENGINEERING
SCHOOL OF ENGINEERING
MARA INSTITUTE OF TECHNOLOGY

FINAL YEAR PROJECT IN FULFILLMENT OF THE REQUIREMENT
FOR THE AWARD OF AN ADVANCED DIPLOMA IN MECHANICAL
ENGINEERING

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YEAR : MAY 1983

ACKNOWLEDGEMENT

All Praises to ALLAH, Lord Of Universe, The Merciful, The Most Gracious and to Nabi Muhammad S.A.W, his companions, his friends and to those who follow his path.

We would like to take this opportunity to express our sincere gratitude to our Project Advisor, Dr.Hassan bin Ibrahim, who has been the most helpful in guiding us in completing our final project work. We like to thanks to the lecturers in the Mechanical Department for the assistance, especially to En.Abdul Rahman bin Omar and Dr.N.C.Srivastara for the useful advice and guidance towards the sucess of this project.

We take this chance to thanks the Maintenance Department of Mara Institute Of Technology (ITM) for the assistance and cooperation given during our surveyed on the Dewan Sri Budiman, specially to En. Junaidi (Maintenance Engineer), En. Abu Bakar (Technician) and En. Wan Bakar (Chargeman). Not forgetting our thanks, from the bottom of our heart to the staffs of JKR Headquarters, Kuala Lumpur, Tuan Syed Abdullah (Senior Engineer) and En. Zainal bin Azhar (Technical Assistant), En. Juraisan bin Mohd (Sales Engineer) of Trane Air Conditioning (M) Sdn Bhd, Subang Jaya, En.Mohd Saudi bin Othman (Manager) and En.Amir (Engineer) of Service Master Sdn Bhd, Subang Jaya for their precious time in providing facilities and informations on catalogues and brochures of the latest Air Conditioning System and without their assistance, we could not have achieved what we have now.

Once again, our **THANK YOU** to those involved in the project.

PREFACE

The project undertaken by us is to identify or to analyse the present air conditioning units at the Dewan Sri Budiman as to how the units are performing. Wherever necessary, from our findings, we have to come up with a proposal of up-grading the present units with suggestions as to how the improvement could be done. The aims of the project basically, is to save the energy usage by the existing units or finding ways of reducing the energy conservation by the units if possible. As we know, air conditioning system in the buildings are known to be the largest energy consumer in term of the kilowatts used of electricity. Therefore proper maintenance of the units must be taken care by the owner so as to ensure maximum operating efficiency. The initial stage of selecting the right air conditioning system of the proper design on the load requirements is very crucial so as to ensure evenly distributed cooling throughout the dewan.

For the dewan, it is observed that the diffusers are located on the ceiling of the Dewan where the ducting of the air conditioning run on it. The ceiling is 36 feet high, and the spaces below it, can be consider as a waste of cool air which is not being used before it reaches the required height to comfort people. This space makes up about several tons of cooling load that can be eliminated if the air distribution

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INTRODUCTION.

1.1 The Need For Air Conditioning

Full air conditioning implies the automatic control of an atmospheric environment either for the comfort of human beings or animals or for the proper performance of some industrial or scientific process. The adjective "full" demands that the purity, movement, temperature and relative humidity of the air be controlled, within the limits imposed by the design specification. Air conditioning is often misused as a term and is loosely and wrongly adopted to describe a system of simple ventilation. It is really correct to talk of air conditioning only when a cooling and dehumidification function is intended, in addition to other aims. This means that air conditioning is always associated with refrigeration and it accounts for the high cost of air conditioning.

Refrigeration plant is precision built machinery and is the major item of cost in an air conditioning installation, thus for every 1°C temperature difference, the expense of air conditioning a building is some **four times greater** than that of only heating it. Full control over relative humidity is not always exercised, hence for this reason a good deal of partial air conditioning is carried out; it is still referred to as air conditioning because it does not contain