

ENERGY EFFICIENT AND ALTERNATIVE AIR DISTRIBUTION
SYSTEM FOR DEWAN SRI BUDIMAN

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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