

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

PROJECT TITLE:

AIR CONDITIONING SYSTEM DESIGN FOR A LARGE BUILDING

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I N T R O D U C T I O N

The control of indoor climate is an important industry in Cyprus and throughout the world generally. Only in a few favored areas of the earth's temperate zones can people live comfortably and work effectively the year round without some form of winter heating and/or summer cooling. The science and practice of creating a controlled climate, that is, conditions that are conducive to human comfort is called air conditioning.

An air conditioning system is a combination of various components which by operating in a controlled manner, produce and maintain the "artificial" comfort environment which is so desirable. The term air conditioning is sometimes misunderstood or misused. Often only cooling is implied when air conditioning is mentioned. However in practice to provide complete air conditioning a system must accomplish all the following: HEATING, HUMIDIFICATION, COOLING, DEHUMIDIFICATION, VENTILATION, FILTERING and CIRCULATION. Systems which omit one or more of the above seven functions are therefore not complete systems.

In Cyprus air conditioning is widely used in business enterprises such as banks, office buildings, shops and hotels, but domestic air conditioning is limited mainly due to its current relatively high initial cost. However, lately domestic air conditioning started becoming quite popular.

Because Cyprus island enjoy a very sunny climate with long periods of bright sunshine and high insolation, a lot of tourists are attracted every year, but especially in the summer period. High demand levels for hotel beds, resulted to the rapid development of hotel industry and many hotels have been erected and other are still under erection, a lot of which are situated near the lovely beaches. Due to the big number of hotels and the need of high capacity air conditioning installations to service

them, the higher percentage of capital expenditure in the air conditioning sector is in the hotel air conditioning field.

The building in concern consist of four flat floors, the ground floor mesanine and the basement. The basement contains mainly stores, equipment rooms, staff rooms and the mechanical room. For the sake of keeping both the initial and running costs of the air conditioning plant as low as possible the basement rooms will not conditioned.

On the other hand ground floor and mesanine contains shops that must be conditioned.

The four floors contain the Flats, 4 each which wil be fully air-conditioned. Again for keeping initial and running expenses down the corridors will not be conditioned.

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