COMPUTER AIDED DESIGN OF HEATING AND HOT WATER SYSTEMS

by

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Project Report

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SUMMARY

The objective of this project was to develop and test the necessary Software, for executing the appropriate design procedures for **Heating and Hot water systems**.

Due to the fact that there is an explosion of **Microsoft Windows** users and programmers, it was recommended to use a programming language working under Windows and **Visual Basic**, which is the state of the art at present, was chosen for that purpose.

Visual basic's *visual* and *event oriented* approach are the keys to simplify Windows development. In a nut shell, the programmer can develop applications graphically. He point and click, selecting objects, controls, properties, and so on from menus. Programming the interface in visual basic is much closer to user level than the traditional programming level. The programmer must, of course at code to the Windows (called forms in visual basic) that you create by pointing to and clicking menu items, but even adding code is simplified by templates, automatic indentation, super fast syntax, checking, and so on.

As an addition to the above an application created in visual basic might use **Microsoft Excel, Quattro Pro for Windows**, or another spreadsheet or data base to hold and manipulate data engaging **DDE** (Dynamic Data Exchange) and **OLE** (Object Linking and Embedded).

The first thing taken into consideration was to establish in detail the task of the required software and this was done at Chapter 2 by analyzing the heat losses from a building. The types of heat losses, i.e. the infiltration or ventilation or the fabric losses

where investigated and mathematical expression of the overall heat loss was finally written down.

The following step was to create a spreadsheet in Microsoft Excel calculating the total heat loss from a room taking into consideration as many as possible factors for heat loss.

As soon as this was done the appropriate interface was design with the aid of Visual Basic having in mind that this should give the impression of a very "user friendly" software. All the Data input Requirements were placed on the interface, and the ability of visualizing the spreadsheet at run time, making directly any necessary changes, and seeing directly the results of this action was taken into consideration.

The next step was to engage Dynamic Data Exchange between the Visual Basic interface and the Microsoft excel spreadsheet to calculate the heat loss of a room and write the appropriate coding in Visual Basic in order to access the spreadsheet as many times as the number of rooms and present the overall heat loss of the building.

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