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ENCALC – A SOFTWARE FOR THE EVALUATION OF THERMAL ENERGY CONSUMPTION IN BUILDINGS

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The paper presents a new software tool designed for the evaluation of the thermal energy consumption in buildings. The program enables a designer to input building elements with their characteristics (dimensions, structure, orientation), as well as climatic conditions and to calculate the necessary thermal energy for heating and warm water preparation. Results are shown in tables and charts and reports can be produced. The software is for architects and civil engineers in various situations like: thermal rehabilitation of the old residential buildings, schools, hospitals, and new building design. It is a user-friendly computer program, with a Romanian userinterface, compatible with Windows operating systems, easy to install and operate.

The first chapter, is an introduction to the application areas of the software and the category of specialists that could benefit. The second chapter (*ENCALC Profile*) presents in more detail the characteristics of the program and the methods used in computation. The functions of the program are: testing the existing buildings if they comply with the current energy consumption standards; optimization of a building energy performance, in the design phase, by analysing various solutions; evaluation of energy conservation measures applied on existing buildings; evaluation of the necessary energy resources at the national level by calculating energy consumption for representative buildings. Also the simplifying assumptions on which the calculation is based are showed. The third chapter (*Working with ENCALC*) discusses the working session with ENCALC. The main window, types of projects, input of the characteristics of building elements, climate conditions, structure definition, etc. are presented. Next, the calculation and the output of the results (chapter 4) is considered. Suggestive screenshots are included to demonstrate the ease of use and the ability of the program to process a wide range of situations. Some conclusions are drawn in chapter 5 showing that ENCALC can assist the architects and building engineers in evaluating the thermal energy consumption in existing buildings and in designing new ones. This is required by a series of European as well as Romanian standards.