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Model Computer Program for Preliminary Building Plans:
An initial design and construction educational tool

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The building design is a complex task, whose processing takes time and depends on the characteristics of the people involved as well as on a set of basic design and construction standards. Given that dealing with such a task requires expertise and experience, the education of future architects and building engineers could be characterized quite a challenge. In an attempt to simplify the preliminary design and construction procedures, in terms of the Building Science education, this paper presents a method for investigating, organizing and planning the initial and design construction stages of a conventional small house.

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In particular, this paper analyzes the configuration of a model computer program for preliminary building plans, as an educational tool, whose utilization could, indeed, claim a substantial and significant role both in secondary and higher engineering education. The model computer program for preliminary building plans is a complex algorithm, which:

a) Being continuously and properly updated, organizes and stores a number of alternative building materials and information, as well as a number of alternative drafts of modern, building constructions.
b) Records and organizes the specification requirements (time, financial, construction and operational requirements) of the individual user-student who seeks initial guidance and instructions on how to construct a simple building (e.g. a small house).
c) Searches and determines, based on the above stored information, alternative building products (building materials and final building plans) whose specifications meet the aforementioned requirements and, finally, presents them to the user.

This research aims to:

a) document and organize appropriately, the most common specification requirements that correspond to the conventional construction of a small house.
b) present lists of alternative building materials and information, alternative drafts that meet the aforementioned requirements.
c) develop the basic principles required in a computer program that collects and organizes all information needed, searches and ranks properly all building materials and, finally, combines all the above in order to recommend optimum building plans.
d) present an example of the basic structure and functionality of such a computer program along with the way of actually utilizing it by people interested in the specific area of expertise, i.e. educators and trainee architects-building engineers.
e) suggest ways of extending current program implementation and provide possible routes for future work. ■

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