

FIGURE 1 Total system

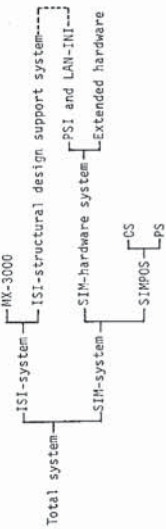
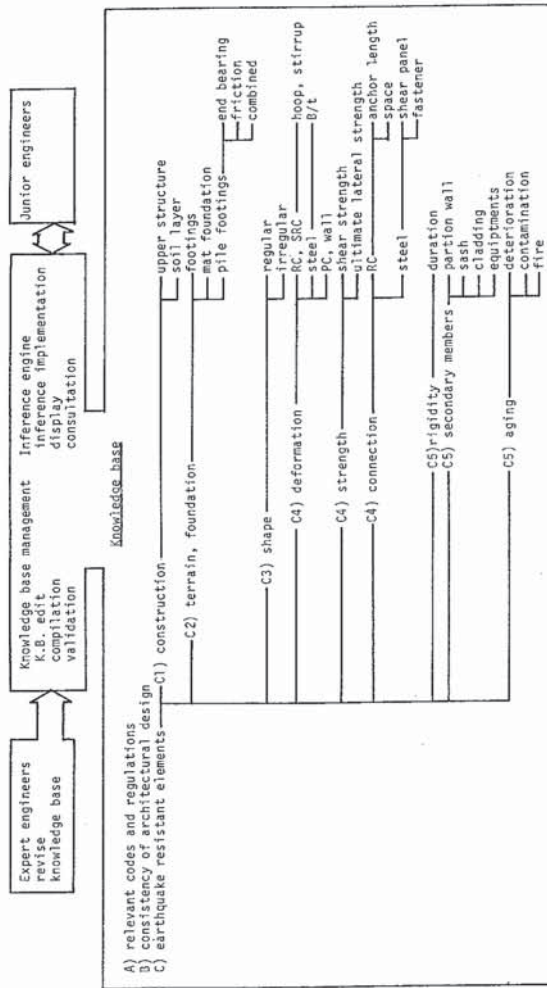


FIGURE 2 Expert system



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KEYWORDS

Expert System, Houses, Learning, Market Information, Market-research Medium, Physically-Handicapped People.

ABSTRACT

The authors have developed a learning tool for house designers and house-sales staff. The system is available for housing developments of all kinds. The paper focusses particularly on housing for physically-handicapped people. The system is organised as a market research medium. Market information is gathered as and when potential purchasers use the system for assistance in relating their requirements to the house builder's houses on offer. There was a problem to know the reasons when potential housebuyers did not proceed to a purchase. The potential purchaser's inputs enable the house builder to assemble and monitor the reasons why sales are achieved and also why they are not. The system is being developed with especially written programs. There is a core program which may be extended to suit the requirements of the developer who purchases the system.

METHODE POUR L'INFORMATION DES ARCHITECTES
ET DES ENTREPRENEURS.

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Mots-clés

Méthode, logements, compréhension, données, étude de
marché, personnes handicapées physiques.

Sommaire

Les auteurs ont conçu une méthode d'information pour les architectes et la force de vente dans l'immobilier. Cette méthode concerne la vente de logements de toutes sortes. Cet article met particulièrement l'accent sur le logement des personnes handicapées physiques. La méthode se présente comme moyen d'étude de marché dont les données sont rassemblées lorsqu'un acheteur potentiel demande des renseignements sur les maisons à vendre. Le problème est de connaître les raisons pour lesquelles un acheteur potentiel ne procède pas à l'achat. Les données obtenues permettent au promoteur de résoudre ce problème. Cette méthode a été conçue à l'aide de programmes écrits spécialement dans ce but. Un programme principal peut être étendu selon les besoins du promoteur qui achète la méthode.

INTRODUCTION

The authors in the recent past carried out studies which mapped out the effect on houseplans of incorporating facilities for physically-handicapped people.

An extension of this earlier work, linked to an expert system, now provides a learning tool for house designers and house sales staff engaged in the speculative housing market. The system is available for housing developments generally - not only those for physically-handicapped people. Nevertheless, the physically handicapped context is the particular focus in this paper.

MARKET-RESEARCH MEDIUM

The system is organised as a market-research medium. Market information is gathered as and when potential purchases use the system for assistance in relating their requirements and preferences to the housebuilder's houses on offer. The potential-purchaser's inputs enable the housebuilder to assemble and monitor the reasons why sales are achieved and also why they are not. A facility for processing the information collected is incorporated without transferring out of the system: the responses of housebuyers are input promptly to the system's knowledge-base; learning from customers' responses by the designers and sales-staff can take place without delay.

METHOD OF USE

For implementation, the system is installed in the housebuilder's sales office, for the physically-handicapped or other housebuyer to use on visiting the development site. The system comprises an IBM P.C. micro-computer with special programs.

The system first presents a comprehensive listing of the criteria that housebuyers are observed to use in selecting the newly-built house they buy. In each criterion a range of alternative preferences is set up.

Example: Criterion Number of bedrooms
Alternative preferences 2,3,4,5 bedrooms

Operation The housebuyer is invited to adopt as many of the criteria as he or she wishes and to select the value(s) in each that he wishes. The housebuyer then puts a rating (1 thro 10) to each of the values he has specified. The ratings are scored and the housebuilder's most suitable house or houses thus identified.

Flexibility The housebuyer will want to be able to know how he is getting on at any stage in the process - he or she will want to have the facility of seeing where his choices are leading to: which of the houseplans are the most likely, from the information he has provided so far. He may also wish to change earlier choices. The component will provide its assessment

at whatever stage the housebuyer may wish.

Market-research medium In the course of use the system provides a complete record of enquirers' responses for use in the formation of house designs and future policy by the house builder. The system divides into modules: there is an Initial Module to which others are added when justified by increased sales. The modules enable the housebuyer to examine his or her initial views with an eye to opportunities arising from adjustments to initially-held preferences; provide a cost-in-use facility for different use patterns; enable the housebuyer to assess his or her personal after-tax monthly total cost - and also capital asset value - with a range of interest, tax and inflation rates.

HANDICAP HOUSING FOR SALE

There is a small but growing sales provision being made of private-sector housing for physically-handicapped people.

The houses for sale have their inspiration in the pioneer work of Mr Selwyn Goldsmith in the 1970's. Goldsmith's work in the 1970's focussed on public-sector housing. The codes Mobility Housing and Wheelchair Housing were developed during those years ushering in a degree of standard provision. This has encouraged private sector developers to include house types for physically-handicapped people among their housing developments.

The developers' house types for physically-handicapped people draw on the principles developed by Selwyn Goldsmith. For commercial reasons they are normally compelled to be standard designs: without there being ad hoc features. The handicapped people who are buying their house, meanwhile, have particular needs. They may also have the consequences of progressive worsening of their handicap in the future to consider.

The system is of particular assistance to the housebuyer in this context, where a complex set of compromises is likely to be necessary. Again, the information obtained is particularly helpful to the developer in what is a new area for the speculative market.

Typical steps in using the package will include:

- Price range? (alternatives given for selection)
- No of persons?
- Housebuyers'perceived requirement for special features in the home (eg. 1,000 mm wide corridor; 900 mm wide doorsets; space for lift to upper floor in house)
 - now?
 - in five years' time?
 - in ten years' time?

By weighting the criteria and coming up with a houseplan, working through the process as often as he wishes, the housebuyer is assisted in making his or her decision.

EXPERT SYSTEM

The authors find that the system is best developed progressively with specially-written programs. There is a specially-written core program which may be extended to suit the requirements of the developers who purchase the system.

The authors continue to review information on standard expert system shells as it becomes available. The shells of which we are aware at present do not appear to be suited to our purpose.

CONCLUSION

The system sets out to meet the need of housebuilders to understand and improve upon their sales record. This is done by helping potential housebuyers assemble and balance their preferences, leading to the most suitable house in the developer's range for their purpose.

The case of physically-handicapped house-buyers deserves particular attention. For physically-handicapped housebuyers there may be severe compromises to unravel, in which the system can help. The market information for the developer obtained by the system in this context may also be of particular use - in this new area of the speculative housing business.

The expert system is developed as called for in meeting the different needs of housebuilders. A standard expert system shell has not yet been found suitable for the system.

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DARC

A knowledge based Design Assisting Representation Concept.

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KEYWORDS

Architectural Design, Knowledge Based Systems, Expert Systems, General Data Base, frame concept.

ABSTRACT

DARC is a knowledge based representation and consulting model to accommodate the initial stages of the architectural design process. The building specification are translated into a frame based modular representation model. With the DIALOG system new information may be added to the various modules. The DIALOG system also supplies an internal and external consistency enforcer, i.e. if the stored information is not in contradiction to itself, and if there are information items violating external rules, regulations or data.