A Knowledge-based Expert System for Selection of Appropriate Structural Systems for a Particular Function

Expert system technology provides a new opportunity for organising and systematising the available knowledge and experience in the structural selection domain. Computerisation, in general, and expert system technology, in particular, can provide assistance for the engineers by giving much greater access to information, knowledge and expertise and by processing this information. This paper presents an interactive expert system called Structural Selection Expert System (SSE) that assists engineers and designers in the choice of the most appropriate structural system for a particular function to meet proposed criteria. It can be used as a teaching aid for architecture, civil engineering and structural design students. The paper explains why the selection of suitable structures for a particular function was considered appropriate for an expert system, then the knowledge acquisition techniques are described. The different tools used to develop expert systems are briefly discussed with emphasis on the implementation methodology and tools adopted in the research. The advantages of implementing the SSE using object-oriented development and Kappa-PC are presented. Knowledge representation in the SSE and the techniques adopted to represent the structural systems knowledge is discussed. The inference mechanism in the SSE is described in some detail, followed by hardware requirements for the system.

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