NEW POSSIBILITIES OF STRUCTURAL DESIGN USING ARTIFICIAL INTELLIGENCE TECHNIQUES

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Summary: Timber construction design in Croatia is still based on the Allowable Stresses Design, although the acceptance of the Limit States Design is to be expected as obligatory in near future (2012). Due to transparency of EC5 Standard, a new and different approach to construction behaviour, detailed calculations, complex structure and mutually interweaving standards imposes a demanding task to a designer, especially to a less experience one. The use of expert system (or some other AI technique, as object oriented approach, for example), for calculation flow modelling follows the idea named "totally computed process of structural design" and should become a result of contemporary computer use in some design phases. Systematic integration of classical RBES and neural networks is an idea that requires further investigation. In this paper it is shown that expert system can be intelligent tool in designing. Neural network, which are on the other hand opposite to rule based expert system will provide possibilities to identify acceptable design of glulam roof.

Keywords: structural design, artificial intelligence, Eurocode 5, expert system, neural network.

MODELING OF STRUCTURES

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