

Expert System for Road Bridge Constructions

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Abstract : The basis of realizing a construction project is a technically flawless concept which satisfies conditions regarding environment and costs, as well as static-constructional terms. The presented software system actively supports civil engineers during the setup of optimal designs, by giving advice regarding durability, life-cycle costs, sustainability and much more. A major part of the surrounding conditions of a design process is gathered and assimilated by experienced engineers subconsciously. It is a question about eligible building techniques and their practicability by considering emerging costs. Planning engineers have acquired many of this experience during their professional life and use them for their daily work. Occasionally, the planning engineer should disassociate himself from his experience to be open for new and better solutions which meet the functional demands, as well. The developed expert system gives planning engineers recommendations for preferred design options of new constructions as well as for existing bridge constructions. It is possible to analyze construction elements and techniques regarding sustainability and life-cycle costs. This way the software provides recommendations for future constructions. Furthermore, there is an option to design existing road bridges especially for heavy duty transport. This implies a route planning tool to get quick and reliable information as to whether the bridge support structures of a transport route have been measured sufficiently for a certain heavy duty transport. The use of this expert system in bridge planning companies and building authorities will save costs massively for new and existent bridge constructions. This is achieved by consequently considering parameters like life-cycle costs and sustainability for its planning recommendations.

Keywords : expert system, planning process, road bridges, software system

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