Urban and Building Design Methods for Resource Management

Design has great impacts on resource use. For instance, the demand for transportation is dependent on the design of cities, the demand for energy is dependent on the design of buildings, which in turn affect the health and well-being of citizens, society's human resources and social capital, to name but a few dimensions. Engineers may influence decision making at all levels, and do in many instances have direct responsibility for decision making. However, many Civil engineers don't really think of themselves as designers. However, this perception is changing. Engineering is fundamentally a design discipline. Having a structured approach to design methods, a design methodology, is a fundamental aid in decision making and resource management through design. At DTU Civil Engineering experiments are made in cross-disciplinary collaboration between engineers of different specializations and outside collaborators. Design methodologies are invented addressing urban and building design issues, making performance, resource use and environmental impacts transparent. This talk discusses how design methods can be used for decision support in urban and building design, based on quantitative modelling and qualitative research. Examples from practice will serve as cases, where research-based design methods have been developed into innovative design tools and services. The discussion is taken further as there is a pressing demand for further cross-disciplinary integration and collaboration on developing tools and methods for resource management and decision support regarding the development of the built environment towards a sustainable future.

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