UNIVERSITY OF CAMBRIDGE
Department of Engineering

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Considering Constructability in the Design Process: A Review of Current Practice within the UK Construction Industry

Improving productivity has been a longstanding challenge for the UK Construction Industry to address and has increasingly become the focus of the UK Government. One way to improve productivity is through the innovation of the design and engineering process, particularly around the area of constructability. Constructability is a specific term used to describe how efficiently a design can be realised in construction. While this term has been used for many years, it remains a challenge for the construction industry to address. This research answers the question: what is the current practice for the incorporation of constructability in the design within UK construction industry design firms? The aim is to establish what is currently done in practice; to understand what needs to change to enable the industry to transform and meet the challenges of the 21st century. This exploratory research carried out 20 interviews with current designers in senior roles within the UK construction industry. The participants were from ten organisations, including some of the largest UK consultancies. Qualitative data was collected and thematically analysed, showing that while the industry has embraced the importance of constructability, it is rare for a formal policy or process to be used by designers. Whereas other countries, such as Singapore, have adopted formal requirements, the UK has not. Furthermore, UK designers associate constructability with the Construction (Design & Management) (CDM) Regulations. While CDM regulations have been successful at bringing designers' attention to health and safety, this is not the best vehicle for incorporating constructability. Also, designers are considering constructability through tacit knowledge and making subjective decisions, not data-driven decisions. The implementation of formal policies and adoption of existing methods for embedding constructability in the design phase could have significant benefits to the industry, aiding the industry to transform and address challenges, such as improving productivity. The findings of this study have provided an insight into the current practices of UK construction industry design firms. It found examples of changes required within current practice; however, it did not find consensus on what changes are necessary, suggesting avenues for future work to build on this research.

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