

THE EFFECTS OF CAD ON BUILDING FORM AND DESIGN QUALITY

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INTRODUCTION

This issue of ITcon is focused on architectural design and the influence that IT, particularly CAD, has had on building form. It looks at the relationship between the evolution of CAD systems and the growing complexity of iconic buildings, and asks whether this freedom of expression results in better buildings or whether IT is more effective when applied to the processes of information modelling and communication.

Hannu Penttila provides an introduction to the evolution of CAD related to the variety of forms used by modern architects. The Finnish examples include the naturalistic forms of Aalto and the virtual reality modelling of additions to his work at Otaniemi. He also stresses the importance of information modelling so that CAD is not seen as just a tool for handling geometry or visualisation.

Anita Moum looks at IT in relation to the whole architectural process and tabulates each stage according to three levels of relevance: individual, group and industry. Different benefits of IT can be found at each of these levels and this structure is applied to a Norwegian case study from which additional challenges arise. This methodology of 'table shells' will be applied to other projects in her research.

Rob Howard simplifies the complexity of building form into orthogonal or curved forms in 2 or 3 dimensions in order to apply the criteria of the UK Design Quality Indicators. They help to assess design quality alongside other benchmarks. When more projects have gone through this process there will be more definitive data. However reservations about complexity for its own sake lead to the conclusion that information modelling is likely to be more productive and should eventually be applicable to the complex forms seen in many iconic buildings.

Jane & Mark Burry report from Australia on the essential nature of CAD for their ongoing work on how to complete the Sagrada Familia to Gaudi's original intentions. There has been a shift from the Euclidian concepts of historical, and even modern, building to natural systems of growth and form. Their reverse engineering from the original plaster models is helping to complete a structure conceived before CAD tools became available.

This collection of papers is rather different to the mainly process-based themes of ITcon but, at a time when the complex forms of the building product have been made possible by the developing capabilities of CAD systems, it is important to balance the possibility of ever greater complexity with other IT benefits from sharing information models and adding quality to the design and construction process as well as to the end product.