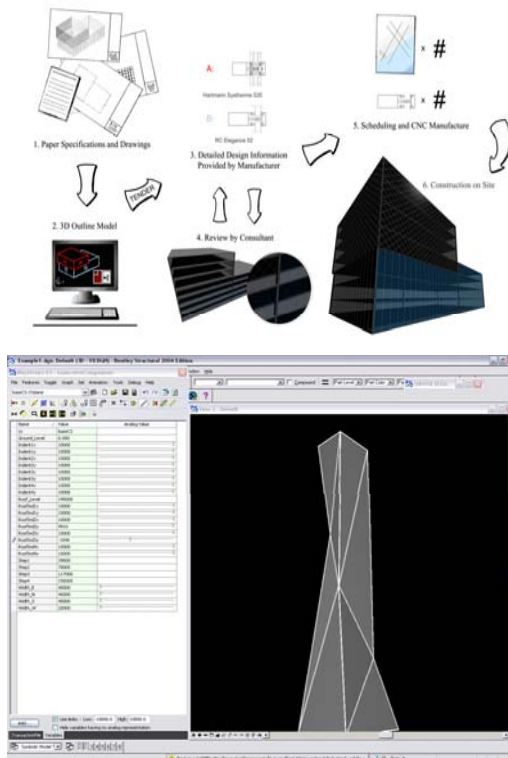# Computer-Integrated Design and Manufacture of Façades

Research Student | TBC

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Overview | *The increasing popularity and complexity of modern façades is creating unprecedented challenges for façade engineers and façade contractors. Some of these challenges stem from poor communication between the design and fabrication teams and result in a number of problems, namely: inaccurate information at tender stage leading to a lack of cost certainty; duplicated and often conflicting information produced by various members of the design and fabrication teams; potential on-site clashes at the façade/structure or façade/services interfaces. These factors often have severe implications on the construction programme, construction cost and on-site safety. This project considers how communication between engineering consultants and façade manufacturers could be improved and aims to develop and implement an integrated computer-based approach for the design and manufacture of façades.*

Outcomes & Impact | *The integrated approach will allow design information to be passed digitally between the consulting engineer and the façade manufacturer, thereby replacing the current sequence of increasingly detailed and often conflicting drawings with a three-dimensional computer model. This model will initially consist of basic outline information with attached specifications at early design stage, and is then augmented or revised by both the engineer and the manufacturer as the project progresses through to the detailed design and fabrication stages.*

Work involved | *Initially, a review of integrated design in construction and other related industries, and the potential benefits of the transfer of this approach to façade design; a comparison of the various parametric design software currently available that could be used for integrated design of façades; and an indication of the possible improvements to the design-manufacture process. This will be followed by the design, implementation and trial of a new, integrated approach.*