A Building Envelope Information Model for an Integrated Design and Construction of Façades

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Overview | As building envelopes and high performance facades become more complex, integration between the members of the design team and supply chain is of ever greater importance. This research project aims to identify how the transition from design to manufacture of facades could be optimised through improved communication and assimilation of information and design drivers.

Outcomes & Impact | The results of the project can be applied across the building construction industry. Increasing the ability of Engineers to effectively manage the façade design and manufacturing process will aid the successful development of both functionally and aesthetically complex building envelopes that are crucial to meeting the challenging requirements for contemporary buildings.

Work involved | It is envisaged that the project will consist of three phases:

1. An in-depth study of Building Information Modelling across the construction industry, and of design and manufacturing process in façade engineering. The goal of this phase is to identify current barriers to the application of BIM in façade design and specify the requirements for an effective implementation.

2. Developing a prototype BIM for specific application to façade design in response to these issues. This will consist of software (in the form of add-ins to existing modelling applications), and a specification of information to be captured and procedures to be followed. The prototype model will be used to gather detailed feedback from design professionals to inform the final design.

3. Refining the prototype model and applying it to a section of a live project. This will allow detailed testing and observation of the application of BIM to a façade design environment.

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