

# Technology, Design and Process Innovation in the Built Environment

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Buildings and infrastructure represent the principal assets of any national economy as well as prime sources of environmental degradation. Making them more sustainable represents a key challenge for the construction, planning and design industries and governments at all levels. The rapid urbanisation of a 21st century carbon- and resource-constrained world has turned this into a global challenge.

This book embodies the results of a major six-year research programme by members of the Australian Cooperative Research Centre (CRC) for *Construction Innovation* and its global partners, presented for an international audience of construction researchers, senior professionals and advanced students. It covers five themes, applied to both regeneration and new build, within the overall theme of innovation:

**Materials:** focuses on sustainable building material products, their manufacture and assembly.

**Design:** at the heart of the sustainability transition is virtual building and the potential through building information modelling (BIM) for multiple real-time performance assessments of a proposed project, prior to construction.

**Construction:** virtual design and construction provides a simulation of the construction process at design stage, life-cycle management of project information, risk minimisation, and potential for innovation and adding value.

**FM:** now incorporates integrated design, construction and operations management over the project life cycle with 'as built' BIMs becoming a standard requirement.

**Innovation Capture:** explores how AECO organisations (architecture, engineering, construction and operation) can improve their management to deliver a more effective and efficient industry and a more sustainable built environment.



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