



CRC Construction Innovation
BUILDING OUR FUTURE



Established and supported under the Australian Government's Cooperative Research Centres Program



**BUILDING
OUR FUTURE**

The Australian construction industry



“The Australian property and construction industry has a notorious record of adversarial relationships and limited uptake of innovation. Today’s internationally competitive environment demands a more collaborative and smarter approach which Construction Innovation is encouraging its partners to adopt.”

John McCarthy
Chairman CRC for *Construction Innovation*

Facts and figures

- Construction is one of Australia’s most important industries and an integral part of the national economy. It is also a key contributor to Australia’s well-being and progress and has a major influence on every Australian. It provides the homes in which we live, the places where we work and play, our schools and hospitals, and the infrastructure essential for our day-to-day living such as roads, water and electricity supply, and telecommunications.
- Poor quality design and documentation is estimated to cost 7% of total construction costs with rework in construction likely to be greater than 10% of project cost.
- An estimated one-off construction productivity improvement of 0.3% annually results in an improvement in GDP of \$6.5 billion and is at least double that of any other sector (ACIL Tasman, 2005 and STEM Partnership, 2006).

Australia’s Cooperative Research Centre for *Construction Innovation*

The CRC for *Construction Innovation* is a national research, development and implementation centre focused on the needs of the property, design, construction and facility management sectors. Established in 2001 under the Australian Government’s Cooperative Research Centre Program, and headquartered at Queensland University of Technology, *Construction Innovation* is developing key technologies, tools and management systems to improve the effectiveness of the construction industry.

Underpinning *Construction Innovation* is the most significant commitment ever made to construction research in Australia – a seven year \$14M Commonwealth grant and \$52M in industry, research and other government funding. More than 400 researchers and an impressive alliance of 21 leading participant organisations are involved in and support the activities of *Construction Innovation*.

Our vision is

to lead the Australian property and construction industry in collaboration and innovation.

Our objectives are to

- enhance the contribution of long-term scientific and technological research and innovation to Australia’s sustainable economic and social development
- enhance the collaboration between researchers, industry and government, and to improve efficiency in the use of intellectual and research resources
- create and commercially exploit tools, technologies and management systems to deliver innovative and sustainable constructed assets to further the financial, environmental and social benefit to the construction industry and the community.



- As one of the largest sectors in the Australian economy, property, design, construction and facilities management accounts for 14% of Australia’s GDP. It also employs around 860,000 people through 250,000 firms – the vast majority of which are small-to-medium sized enterprises (SMEs) – and contributes significantly to the rest of the Australian economy as an enabler.
- Traditionally the building and construction industry has been slow to research and innovate. The creation of the Cooperative Research Centre for *Construction Innovation* is reversing this trend and delivering real benefits to its partners and the industry.
- The Australian Bureau of Statistics estimates that from an initial \$1 million extra output in construction, a possible \$2.9 million in output would be generated in the economy as a whole.

Our research, development and implementation



“We are driving competitive outcomes and cultural change, improving industry effectiveness and boosting national prosperity through collaboration with our industry, government and university partners, who are improving the long-term productivity and sustainability of the Australian construction industry.”

Keith Hampson
CEO CRC for *Construction Innovation*

Construction Innovation directly contributes to improving Australia's GDP through scientific and applied research and developing tools, technologies and management systems for our partners, which add value to industry through:

- encouraging innovation and delivering significant industrial, commercial and economic benefits
- developing science and software tools that improve the way the design, construction, refurbishment and demolition industries work
- making workplaces safer for construction workers
- helping to reduce water and energy use and CO₂ emissions in our buildings.

We focus on the following core areas:

Program A: Business and Industry Development

Program B: Sustainable Built Assets

Program C: Delivery and Management of Built Assets

Underpinning these research programs is an advanced Information and Communication Technology (ICT) Platform.

Achievements to date

The achievements, outputs and outcomes of the CRC for *Construction Innovation* during the period 2001–2006 are outstanding and briefly summarised below:

- Public policy makers in the Queensland and Western Australian Governments, Australian Building Codes Board, Building Commission (Victoria) and Brisbane City Council have actively sought input from *Construction Innovation* projects to develop improved evidence-based policy.
- In collaboration with our government, industry and research partners, *Construction Innovation* developed software tools that use digital building information modelling technology to model complex facility designs.
- Currently five ICT products are being trialled as prototypes by participants and external parties: *LCADesign*, *Automatic Estimator*, *Automatic Scheduler*, *DesignCheck* and *Noise Management*.
- The relationships developed through the *Construction 2020 — A Vision for Australia's Property and Construction Industry* initiative throughout 2004–06 have resulted in increased recognition and reference to the CRC by national and international research and industry development groups.
- International relationships with our ICALL partners (CSTB, France; Stanford University, USA; The University of Salford, UK; VTT Technical Research Centre of Finland; and The Hong Kong Polytechnic University) have opened the door to business activity – including trials of *LCADesign* in the USA.
- To date *Construction Innovation* has provided funding for 23 scholars, with 14 of these programs being completed (8 PhD and 6 Masters). All PhD and Masters scholars have industry associate supervisors or direct contact with industry in their research.
- Industry associations including the Australian Construction Industry Forum, the Australian Institute of Project Management, the International Alliance for Interoperability and the Housing Institute of Australia have partnered with us to disseminate information about our projects to industry.
- A series of CRC industry-focussed events explicitly highlighted the benefits of industry, government and researchers working together for mutual benefit. In particular, the 2004 and 2006 *Clients Driving Innovation* International Conferences each brought together over 200 people from across 12 countries, from research and research user organisations.
- *Construction Innovation* researchers have won a range of professional excellence awards including those awarded by Engineers Australia, Australian Institute of Project Management and the Australian Institute of Building.



INDUSTRY

GOVERNMENT



ARUP

Bovis
Lend Lease

BROOKWATER



John
Holland

WOODS
BAGOT

Rider Hunt

Queensland Government
Department of Main Roads
Department of Public Works
Department of State Development,
Trade and Innovation

Building Commission

Department of
Housing and Works



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RMIT
UNIVERSITY

The UNIVERSITY
of NEWCASTLE
AUSTRALIA



The University of Sydney

Curtin
University of Technology



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For further information or to find out how your organisation can become involved in *Construction Innovation* please contact:

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The Cooperative Research Centres (CRC) Programme was established to bring together researchers and research users.

The programme emphasises the importance of collaborative arrangements to maximise the benefits of research through an enhanced process of utilisation, commercialisation and technology transfer. It also has a strong education component with a focus on producing graduates with skills relevant to industry needs.