CRC Construction Innovation
BUILDING OUR FUTURE

Construction Innovation update

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Cooperative Research Centre for
Construction Innovation

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IN THIS EDITION

Lenard to head Constructing Excellence, UK

Dennis Lenard, CRC for **Construction Innovation's** Program Director for Business and Industry Development, and Professor with The University of Newcastle, has secured a senior appointment as Chief Executive of *Constructing Excellence* in the UK.

Beginning his new role mid-September, Professor Lenard says he is delighted to assume leadership of *Constructing Excellence* at such a key point in the industry's development.

"The UK is investing heavily in the further development of the industry and the key challenge will be integrating and extending the excellent work undertaken by previous initiatives," Professor Lenard remarked.

"The intention is to work very closely with the Strategic Forum to accelerate change and create sustainable construction businesses throughout the entire supply chain, and across the whole sector, so that fundamentally we will provide a framework for UK construction organisations of all sizes to emerge as world leaders," he said.

Keith Hampson, CEO of Construction Innovation congratulates Dennis Lenard

> "We are very keen for a collaborative partnership to develop between *Construction Excellence* and *Construction Innovation*."

Keith Hampson, CEO of Construction Innovation says Dennis' appointment represents an opportunity for **Construction Innovation**, more than a loss.

"We are very keen for a collaborative partnership to develop between Constructing Excellence and Construction Innovation, but at the same time we will keenly feel his absence as Program Director," he said.

Professor Lenard says he did not seek his new position in the first instance but was offered it after 100 UK applications were first considered.

"The position is considered the most senior government position in the UK Construction Industry and having accepted it my appointment was ratified and announced formally by the minister in the UK," Professor Lenard said.

UK Construction Minister Nigel Griffiths says he is very pleased Professor Lenard has been appointed.

"He brings with him a wealth of experience of the Construction Industry both from a UK and International perspective. I am confident he will be able to lead Constructing Excellence and help to realise the Government and Construction Industry's vision for world-beating performance in the future," Minister Griffiths said.

Construction 2020

Tell us where to go

CRC for Construction Innovation is holding Participatory Workshops in all Australian capital cities during Nov-Dec 2003. We want you to help shape the vision of where the property and construction industry is heading.
See our next newsletter for details, and check our website
www.construction-innovation.info

Greenspace united: a vision

The Cooperative Research Centre for **Construction Innovation** is holding a major workshop to encourage a shared vision between key players in the *green space* servicing Australia's property and construction industry.

Scheduled for 7 October 2003 and led by an independent facilitator, the workshop is planned for invited players to come together and develop a united approach to advancing the important agenda of the *green space*.

Dr Keith Hampson, CEO of Construction Innovation says this is an opportunity to encourage the range of organisations in *green space* to consolidate activities to facilitate improved outcomes for industry.

"To do otherwise at this stage of activity would be to jeopardise the opportunity to provide an environment which encourages the Australian industry to be at the forefront of design and operation relating to sustainability and the built environment," Dr Hampson said.

> "Our vision is the development of a practical sustainable green agenda..."

Construction Innovation is committed to building stronger links between researchers and research users in leading the Australian property and construction industry in collaboration and innovation. The organisation was established in 2001 to strengthen industry collaboration, and to develop key technologies, tools and management systems to improve the effectiveness of the Australian construction industry.

Construction Innovation has structured its research focus around three core activities, including the Sustainable Built Assets Program, led by Dr Peter Newton from CSIRO and Ken Stickland from ARUP Australasia.

Dr Hampson says this is an important program to the CRC.

"We are keen to make a significant contribution to Australia's property and construction industry in this area," he said.

Construction Innovation is coordinating the workshop between key players in the *green space*, including the Green Building Council of Australia, Australian Greenhouse Office, Property Council of Australia, Queensland Department of Public Works, Australian Building Codes Board, Evergen and the Australian Green Development Forum, to provide a more unified outcome for the sector.

"Our vision is the development of a practical sustainable green agenda for Australia's property and construction industry," Dr Hampson said.

Solar Suburbs

lighting the future of housing development

You've heard of solar homes. Think bigger. A CRC for **Construction Innovation** project is researching the viability of whole solar suburbs for enhanced environmental and energy efficient lifestyles at Brookwater in Springfield, Queensland.

Australia's current pattern of urban development is unsustainable, and our metropolitan planning and development strategies deliver poor environmental outcomes in relation to energy production. As a result, an increasing number of state and local governments and private sector urban development companies are initiating major Greenfield projects that aim to deliver enhanced environmental outcomes rather than a "business-as-usual" approach, with the most recent example being the Sydney Olympic Village.

> "Our research is exploring energy efficiency in sub-divisions at the design stage, and the possibilities for connecting existing solar 'housing technology' to 'sub-division technology' for sustainable subdivisions."

The market for information and tools which provide energy ratings and analysis of buildings is continuing to grow rapidly as owners, tenants and regulators seek more energy efficient products and product providers seek to create these products at the lowest cost.

Construction Innovation is responding to this growing community and industry concern in their newly formed research project titled: *Sustainable Subdivisions – Energy Efficient Design*. Led by Michael Ambrose, Construction Systems Scientist with CSIRO, the research team will address the issue of appropriate housing energy performance standards in the context of materials, design and technology opportunities, and they will develop criteria for possible future tools to enhance the capability of providing options for improving energy efficiency of dwellings at both the sub-division and dwelling design stages.

Mr Ambrose believes there is a huge potential for tapping into existing technologies for improved energy performance which can then be incorporated into residential sub-divisions.

"Our research is exploring energy efficiency in sub-divisions at the design stage, and the possibilities for connecting existing solar 'housing technology' to 'sub-division technology' for sustainable subdivisions," Mr Ambrose said.

"This entails, at the least, making sure buildings are constructed at the correct orientation, with appropriate insulation levels and with good solar access for utilising photovoltaic solar cells so that sunlight can be converted directly into electricity. Enough sunlight falls on Australia to meet the nation's entire energy needs and we are after capturing a small amount of this free energy," he said.

Construction Innovation's research is the first phase of a potential multi-stage Sustainable Sub-divisions project and focuses solely on energy performance of sub-divisions with a range of contemporary dwelling types, such as detached single and double-storeys, medium density multi-storey residential and mixed use, small office – home office, and high rise residential apartment developments.

> "This is the way of the future in residential development."

The housing developments likely to be used as a resource by Construction Innovation researchers include Kelvin Grove Medium density residential (Queensland Department of Public Works), Brookwater residential (Medallist/Springfield Land Corporation), Research House – Rockhampton (Queensland Department of Public Works), and a high rise apartment.

Dr Keith Hampson, CEO of Construction Innovation, says research user's involvement in this project is essential to drive practical industry outcomes.

"The research will highlight challenges likely to fall on the national housing industry with the release of new energy codes around the country, and it will advise industry on the adequacy of current design options in the context of an emerging energy code for residential buildings," Dr Hampson said.

"It will also canvas the technologies available to housing for on-site electricity generation as a basis for development of solar suburbs. This is the way of the future in residential development," he said.

www.construction-innovation.info

Construction 2020 is a new initiative being developed and led by the CRC for **Construction Innovation**. It consists of a series of participatory workshops being held in November-December 2003 in all Australian capital cities. The aim is to seek industry leaders' and industry members' views on the direction and challenges of the Australian property and construction industry, and to discuss the means by which high quality research and development will contribute to national and international growth. The main purpose of the workshops is to gain an Australian perspective on where the industry is currently heading, a vision for what it could look like in 2020, and the research that is needed to make the Australian industry become more competitive and achieve that vision. For more information on how you can be involved in this participatory process contact Louise Adams, T: 03 5983 2872, E: adamsmail@construction-innovation.info

CONSTRUCTION INNOVATION Byte Sized NEWS

Construction Innovation's 2002-03 Annual Report will be available in October 2003. As well as highlighting the achievements of our centre over the last year, the report includes information on our research program, cooperative linkages, publications and patents, performance indicators and our financial statements. If you would like to receive our Annual Report, please email enquiries@construction-innovation.info with your postal details.

Attention Researchers. The new **Construction Innovation** Proposal Submissions email address is: submissions@construction-innovation.info In addition, the Stage 2 and 3 proposal submission date is 24 September 2003. For more information contact Lauren Gubbin, T: 07 3864 9293, E: l.gubbin@construction-innovation.info

Construction Innovation's intranet is constantly being updated. Members can check for reports, papers, project reviews and relevant documentation on https://internal.construction-innovation.info Obtain your password for access to the intranet from Construction Innovation E: enquiries@construction-innovation.info

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Scaring the daylights out of workers:
How indoor environments affect productivity

A CRC for **Construction Innovation** project is capturing a snapshot of our indoor environments, and let's not kid ourselves, they do affect our health. Project Leader John Bell describes why this innovative Australian research is important.

Can improved building services such as air quality, provision of daylight, and thermal comfort have a positive impact on the health and productivity of building occupants? To many the answer is clearly "YES", but the reality is not quite so simple.

There is significant anecdotal evidence supporting the notion that the health and productivity of building occupants can be enhanced by improving the quality of the indoor environment, but there are few published quantitative studies to substantiate this contention.

Staff employment is a huge expense for business and most commercial buildings with the majority of estimates positioning outlays at nearly 84% of total costs. At the other end of the scale, building services such as energy and water represent around 1-2% of total costs. Because employment costs are so high, increasing staff productivity essentially promises a greater bottom-line saving than almost any other single action a company can take.

Dale Gilbert, Director of the Built Environment Research Unit with the Queensland Department of Public Works says the influence of air pollution on public health is increasingly evident.

"Large, well designed epidemiological studies backed by sophisticated statistical analysis clearly indicates that, for example, ozone and particles have an identifiable impact on respiratory health," Mr Gilbert said.

Despite such health-related studies into the indoor environment, Mr Gilbert suggests the volume and intensity of Australian research lags behind Europe and the United States.

"While some of the overseas research can find direct application in Australia, there remains a need for home-grown research, particularly with respect to cost/benefit analysis," Mr Gilbert explained.

This is one of the reasons why the CRC for **Construction Innovation** is undertaking a comprehensive review of literature worldwide to examine the relationship between health and productivity of building occupants and the quality of the indoor environment. The research project is placing particular emphasis on different aspects of the indoor environment which are believed to impact on these issues, such as the provision of adequate daylight, thermal comfort, and the quality (in terms of particulate matter like dust and biological particulates) of indoor air.

Dr Keith Hampson, CEO of Construction Innovation says this research is highlighting what has been known for some time.

"Employment of staff is a major cost to any organisation, and a person's health and well-being should be enhanced through effective design of their workplace, so this research is in fact a win-win situation," Dr Hampson said.

"With better design approaches to the indoor environment, the worker can be healthier, their productivity can rise, and overall employment costs reduced for the organisation."

The Queensland Department of Public Works is one of six partners to the project (including Arup Australasia; Bovis Lend Lease; CSIRO; Queensland University of Technology and the University of Sydney) all of whom have a shared interest in seeing the development of a systematic approach to Indoor Environmental Quality in Australia where currently there is none.

The project's aim is to frame research, guidelines and methodologies for the Australian property and construction industry which will enable clients to understand the benefits to be gained from implementing new design approaches and technologies to improve the indoor environment. Such benefits can include reduction in staff employment costs through reduced sick leave and absenteeism, reduced health care costs, and increased well-being among staff. The benefits can also include reduced energy and water costs, and reduced maintenance costs through an increased ability to target those key areas requiring maintenance.

Mr Gilbert says one of the aims of the research is to reduce future health care costs, achieved with a program of cost/benefit analyses looking at health, indoor air quality and the built environment.

"The opportunity to influence public health, particularly with respect to Indoor Air Quality, will remain limited if health professionals are confined to treating disorders after they arise," Mr Gilbert said.

"This research will seek wider integration of health professionals into decision-making processes, particularly the infrastructure development, transport planning, building construction and operations phases."

As a result of this research, innovations such as new materials and products will be developed in collaboration with industry. These will give Australia a leading edge in this area as well as contribute to exports and job creation.

"This research can also assist in identifying and implementing a national strategy, with complementary state-based drivers, which can begin to coordinate an Australia-wide approach to quantifying and improving Indoor Air Quality," explained Mr Gilbert.

book review

MEASURING UP TO SUCCESS: **Creating a Benchmarking Service for the Australian Construction Industry**, 2003, Edited by Graham Brewer, Icon.Net Pty Ltd

The CRC for **Construction Innovation's** first published book is based on the outcomes of a Construction Innovation research project *Benchmarking Information and Communication Technology Uptake and Integration in the Australian Construction Industry* led by Graham Brewer of the University of Newcastle.

Contributors to the project include Professor Swee Eng Chen, Marcus Jefferies, Professor Dennis Lenard, Willy Sher, Kathryn McCabe, Judith McCann, Professor John Bennett, Robin Drogemuller, Kay Janis, Dr Stephen Kajewski, and Professor Derek Walker.

The book provides the rationale for the development of an Australian construction industry benchmarking initiative. It reviews excellence in benchmarking from around the world, drawing on best practice to propose an on-line benchmarking mechanism that can be applied to a range of business performance issues. The authors apply the mechanism's format to the topic of Information Communication and Technology (ICT).

> "We must be seen as the gatekeepers of the innovation wave."

Editor Graham Brewer believes the book provides scope for a much bigger picture for the Australian construction industry, and in particular Construction Innovation.

"My vision would be to see Construction Innovation as an Australian construction industry benchmarking bureau," he said.

"It is a fantastic flag around which interested industry players might rally – we must be seen as the gatekeepers to the innovation wave."

Copies of this book can be bought for $14.95 plus GST. Contact Construction Innovation E: enquiries@construction-innovation.info T: 07 3864 1393.

CRC Book for Sale

Copies of the CRC for Construction Innovation's first book Measuring up to Success: *Creating a Benchmarking Service for the Australian Construction Industry,* 2003, Edited by Graham Brewer from the University of Newcastle can be bought for $14.95 plus GST by contacting Construction Innovation E: enquiries@construction-innovation.info T: 07 3864 1393

Diagnosing the culture of organisations

The implicit link between organisational culture and performance has long been recognised in both mainstream and construction management literature. Indeed, within the construction research domain, the impact of culture and organisation on project performance is becoming an increasingly important topic for the establishment of a sound alliancing approach to projects.

A **Construction Innovation** project *Value in Project Delivery Systems: Facilitating a Change in Culture* is attempting to address organisational culture and performance by examining the needs of the Queensland Government Departments of Main Roads (QDMR) and Public Works (QDPW), including their reaction to changing project delivery systems and the need to be even more accountable to the public and project stakeholders. Other participants to the research project include: CSIRO, University of Newcastle, RMIT and John Holland Group.

> The major objective for the research project is to provide a 'toolkit' for dealing with project culture on relational contracts.

Project Leader Professor Steve Rowlinson from Queensland University of Technology says to date the efficacy of alliancing has produced mixed results in the construction industry.

"This research aims to shed light on the practice and pre-requisites for alliancing to be successful," Professor Rowlinson said.

QDPW and QDMR have explored various approaches to project delivery systems and, in order to improve project delivery, have identified the need for further implementation of relational contracting throughout a range of projects and with a focus on their own staff. They believe that change must be directed towards developing attitudes and a culture supportive of relational contracting.

In this climate, the major objective for the research project is to provide a 'toolkit' for dealing with project culture on relational contracts. This toolkit will focus on changing culture within the organisations to facilitate the operation of relationship contracts and encourage the move away from old, adversarial approaches to contract administration.

A key objective for QDPW and QDMR is to move relational contracting down the value chain. In order to do this, project participants have recognised they require an audit of their current position; they want skill sets identified to effectively implement relational contracting at all levels of the project organisation; and they want training and a change process implemented.

Recent studies addressing innovation and change in the context of working relations in project organisations identified 3 significant key parameters which shape how an organisation performs and the spirit within the organisation, including: national culture, organisational culture, organisational structure and commitment. In light of this, five sets of questionnaires are being used as data collection instruments (http://www.culture.crcci.info/questionnaires) with the role of mapping the current status of participating organisations. This information will feed forward into planning for partnering workshops, skills base assessment, an assessment of organisational culture and a strategy for organisational change.

All of the measurement instruments in the research project can be used on alliancing-type projects and traditional projects. By investigating the impact of the various cultural variables on project performance, Professor Rowlinson believes it will be possible to determine patterns in which alliancing contracts work and other patterns where traditional contracts work.

> Partnering and alliancing require a change of mind set – a cultural change.

QDPW and QDMR are planning to develop their organisation culture and attitudes by using the novel approaches embodied in relational contracting with the assistance of the 'toolkit'. It is envisaged that changes will take place through: a process of empowering employees, demonstrating a commitment to regional development, and promoting a sustainable construction industry; QDPW and QDMR's experience of partnering and alliancing, which has been successful on large projects; and an identified need to determine the skill sets within their organisations for successful partnering and alliancing contracts (relational contracting).

The rationale behind this approach is that partnering and alliancing require a change of mind set – a culture change; the client must change alongside the contracting side of the industry; and a fit is required between organisation structure and culture.

Professor Rowlinson says project outcomes will include a better understanding of team and organisational culture in relational contracts.

"We will develop a process for selection of a collaborative team to fit with an appropriate contract strategy, and we'll also provide the scope for change in the attitudes of project participants," Professor Rowlinson said.

"Alongside the reports and toolkits produced, a database will be generated which will be applied to both departments as part of an action research program," he said.

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Cloning CRC's for overseas

The CRC for **Construction Innovation** is a model that should be replicated around the world, says the Chairman of *Rethinking Construction* UK, Mr Alan Crane CBE, who has been spending time in Australia.

Appearing as a speaker at Construction Innovation's inaugural Research Conference July 28-30 on the Gold Coast, Mr Crane says he learnt a good deal from the conference.

"It made me aware of the CRC program, a program I was previously unaware of. I wish we had a similar arrangement for applied research in the UK," he said.

Mr Crane told 120 conference participants that there are many similarities between the UK and Australian construction industry.

"Our industry constantly gets kicked and told it's not good enough; and it makes low or no profits because of its own inefficiencies, and because of government using the industry as its own economic regulator and turning the economy on or off," Mr Crane said.

"It has very small capital and low levels of investment. We disappoint most of our customers most of the time, cannot replicate the good reputation we sometimes get, overspend on projects by about 38%, and have an average program over-run time of 29% on delivery," he said.

The taskforce *Rethinking Construction* came out of this climate with the challenge of designing a model for change and improvement which could be used to tackle underlying processes, to actually fundamentally change and achieve significant improvement of 10-20% in the industry, year in year out.

> "The industry rewards blame and things going wrong."

The *Rethinking Construction* model for change places emphasis on the client, suggesting they should have a commitment to improvement. This would help remove what Mr Crane believes is a culture of blame in the industry.

"In contractual arrangements we all benefit from things going wrong – except the client. The industry rewards blame and things going wrong," he told conference participants.

Mr Crane suggests industry change can be driven by the client.

"If the client is interested in something like life-cycle costing then the industry will be as well," he said.

Rethinking Construction redefined innovation as its relevancy to the individual, different to different people. Within that, it has examined the procurement process, the removal of barriers to integrated working, recruit and retain, developed performance benchmarking and looked at the whole-of-life.

Rethinking Procurement was the strategic outcome, and the goal was to remove reliance on lower costs and focus instead on value. To do this, costs had to be examined to see what was driving 'prices' and a mantra had to be introduced: "*it is unlikely that the lowest price will represent best value*". In addition, Rethinking Procurement wanted to reduce the cost of competitive tendering by bringing all members of the industry together for a whole-of-life approach.

And the results speak for themselves. Mr Crane says the change in procurement in the UK has been a change to the whole industry.

"Procurement change facilitated the birth of a new culture," he said. "Indeed, the adoption of principles of *Rethinking Construction* is the over-performance of the industry because people are now working together, but we've still got lots to do. We only get 41% of productivity on construction projects so we're bad on people waste."

Mr Crane is currently participating in Construction Innovation's Second Year Review Process, a review of the quality of the Centre's research. Although unable to comment on the outcome of this review, Mr Crane says it has been a fascinating process.

"It's been great to meet so many enthusiastic, committed people," he said. "It's also been bloody hard work!"

You can review
Alan Crane's Research Conference presentation at
www.construction-innovation.info/publications

Industry straight-talks Construction Innovation

CRC for **Construction Innovation's** industry partners - including ARUP, John Holland, Queensland Department of Main Roads, Queensland Department of Public Works and Rider Hunt – recently told Construction Innovation members who were attending a Research Conference July 28-30 on Queensland's Gold Coast, what industry's research needs are and how Construction Innovation could meet those needs. This is what the industry said:

… All CRC projects are of interest, but the key ones for us relate to sustainability – this is an 'unploughed field' at the moment but everything is going towards things being managed in an economically sustainable way.

… CRC could lead the way in developing relationships across industry.

… Funding is scarce – CRC's must deliver.

> Knowledge management is our biggest problem.

… Industry needs help in applying the research. There needs to be simplicity of outcomes, and very tangible issues.

… More case study based research is needed. It can be a two-phased approach to producing an outcome. Case studies offer the opportunity to learn hands-on, with the option of executing the next.

… Our aim is to shift the adversarial nature of industry.

… Productivity gains in the industry would be a great achievement of the CRC.

… Research and development is necessary, but we can't manage the information we already have. Knowledge management is our biggest problem.

… That the CRC pays attention to other CRC's is important for technological transfer. We need to look over the fence and learn from others.

> We need that innovation.

… This CRC offers the opportunity to deliver collaborative tangible outcomes.

… This is CRC for Construction Innovation, not the CRC for Construction Research. We need that innovation.

… We are looking for absolutely tangible deliverables from the CRC that we can touch and feel and that can point to productivity improvements in the industry.

… We need better research into parametric estimating systems, better analysis tools, better input by team members, and better flexibility.

… We need to challenge previous assumptions… We've got to look at old ideas and technology to see if they can be reinvigorated.

… We see e-business coming in the future and are very interested to see research here.

… When thinking of research ideas, you need to talk to CRC partners and not reinvent research.

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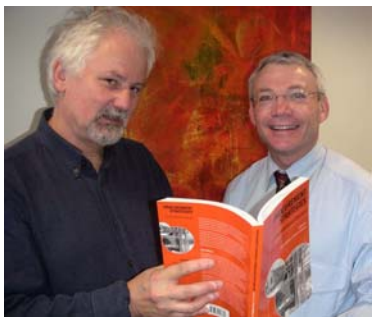
book review

PROCUREMENT STRATEGIES: A Relationship-Based Approach
Edited by Derek Walker and Keith Hampson, 2003, Blackwell Science Ltd, UK



L-R: Derek Walker and Keith Hampson

The construction industry in Australia has been characterised by disputes, fierce competition and fragmentation.

A recently released book edited by Dr Derek Walker, Director of Research, Department of Building and Construction Economics at RMIT, and Dr Keith Hampson, CEO of the Cooperative Research Centre for Construction Innovation, presents a relationship-based approach to project procurement through partnering and alliancing.

Titled Procurement Strategies*: A Relationship-based Approach,* the book explores the critical relationship issues in partnering and alliancing while sharing valuable insights as to how project procurement and project alliancing partner selection works.

The book explores procurement systems and structures [various procurement choices - BOO, BOT, BOOT, design, construction, innovation and turnkey, guaranteed maximum price (GMP)], relationship based procurement attitudes and behaviours and has a strong focus on the human aspects of procurement [cross-team relationships, innovative culture and ethics].

Published by Blackwell, UK, it also offers advice and strategies on how risk and crisis resolution can be managed effectively. Intended as a practical guide, it draws on real-world and successful case studies and models when moving to a relationship-based approach to procurement.

Deb Messer

Linking Research to Industry Needs

Construction Innovation is committed to providing value-adding activities for its members.

During October 2003, Mr Roger Courtney, a consultant in construction research and innovation in the UK, has been invited by Construction Innovation to facilitate workshops on Linking Research to Industry Needs.

Roger Courtney is recognised both within the UK and internationally as a leading figure in construction research and innovation. As Deputy Chairman of the Building Research Establishment, th principal centre for construction researcl in the UK, he has a deep understanding of research and innovation in the construction sector and personal links with research leaders world-wide.

Mr Courtney's knowledge transfer workshops (see Construction Innovation Diary Dates for venues) are a componer of Construction Innovation's rigorous strategy of further developing international linkages, thereby assisting to make Australia more competitive in the global construction industry.

Peter Scuderi, Development Manage with Construction Innovation, says the workshops will be relevant to all Construction Innovation participants.

"Industry partners will gain insights into how they can lead research direction, and Research partners will glean a better understanding on how to engage with industry partners," he said.

For more information, please contact Peter Scuderi, T: 07 3864 1412, or p.scuderi@construction-innovation.info

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Construction Innovation Diary Dates

Invited or Open Participation

7 Oct	*green space* Workshop, Sydney
12 Nov	Construction 2020 Workshop, Auditorium, Brisbane
24 Nov	Construction 2020 Workshop, The Old Woolstore Apartment Hotel, Hobart
25 Nov	Construction 2020 Workshop, Rydges Hotel Melbourne
26 Nov	Construction 2020 Workshop, Sydney*
27 Nov	Construction 2020 Workshop, The Canberra Club, Canberra
1 Dec	Construction 2020 Workshop, Auditorium, Engineers Australia, Perth
3 Dec	Construction 2020 Workshop, Novotel Hotel, Adelaide
4 Dec	Construction 2020 Workshop, Crowne Plaza Hotel, Darwin

Members Only

24 Sept	Research Leadership Training, Brisbane
25 Sept	Research Leadership Training, Sydney
26 Sept	Research Leadership Training, Melbourne
7 Oct	Seminar: Linking Research to Industry Needs, Sydney*
8 Oct	Board Meeting, Melbourne
9 Oct	Annual Retreat, Melbourne
10 Oct	Seminar: Linking Research to Industry Needs, Melbourne*
13 Oct	Seminar: Linking Research to Industry Needs, Newcastle*
14 Oct	Seminar: Linking Research to Industry Needs, QDMR, Brisbane
28 Oct	Research Program Workshops, Sydney
29 Oct	Research Committee Meeting, Sydney
19 Nov	Research Leadership Training, Sydney
20 Nov	Research Leadership Training, Melbourne
21 Nov	Research Leadership Training, Brisbane
10 Dec	Board Meeting, Brisbane

** venue to be confirmed*
For more information on diary events contact Construction Innovation T: 07 3864 1393 E: enquiries@construction-innovation.info

Our Vision

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

Read your stories in
Construction Innovation's
free bi-monthly newsletter.

Articles should be 500 words or less. All contributions should be sent to the Editor at the following contact points: T: 61 7 3864 9295 F: 61 7 3864 9151 E: k.finlayson@construction-innovation.info

CRC Construction Innovation
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UPDATE newsletter is published by the CRC for Construction Innovation in hard copy and at www.construction-innovation.info. If you want to receive UPDATE bi-monthly, please email: enquiries@construction-innovation.info. Your feedback and articles are welcome. All contributions should be emailed to The Editor k.finlayson@construction-innovation.info or T: 07 3864 9295. The editor reserves the right to edit all contributions in consideration of content, length and file size.