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ISSUE FOUR 2017

2017 Professional Excellence in
Building Awards

Project Delay, Disruption & Claim
Management

War on Waste: The 'Battle' to minimise
waste from NSW Construction Projects





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Contents

02 A message from the President

02 CEO's Column

AIB Industry News

04 Congratulations to the 2017 Building Professional of the Year

04 2017 Professional Excellence in Building Awards

06 Celebrating the Past and Embracing the Future

08 The sky is the limit with Sydney's tallest residential tower

09 Project Delay, Disruption & Claim Management

10 Acoustic excellence at Darwin educational facility

12 AFS permanent formwork solutions the first choice – from the basement to the penthouse

Policy

14 Call for Certainty as Major Construction Projects continue to Improve

10 AIBS Policy – Building Regulatory Reform in Australia

Opinion

15 The great Australian dream is about more than just a house

16 War on Waste: The 'Battle' to minimise waste from NSW Construction Projects

Innovation

18 Algorithms design Hamburg concert hall: "It would be insane to do this by hand"

20 LifeArk provides modular housing for disaster victims either on water or land

20 UK University creates solar generating glass bricks

22 Simonds Homes launches new inspirational Design Gallery in Adelaide

International

23 China builds "record-breaking" high-speed rail tunnel under Great Wall

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PO Box 705 Jamison ACT 2601

Email: aib@aib.org.au

Telephone: +61 (0)2 6253 1100

Facsimile: +61 (0)2 6253 4411

Website: aib.org.au

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An introduction to the Australian Institute of Building

The Australian Institute of Building (AIB) is incorporated by Royal Charter and is the preeminent professional body for building professionals in Australia and the Asia-Pacific region. The AIB has a long and proud history of supporting and serving the building profession. For more than sixty years the Institute has worked with the building and construction industry, government, universities and allied stakeholders to promote the building profession, support the development of university courses in building whilst promoting the use of innovative building techniques and a best-practice regulatory environment.

The AIB is proudly supported by:



CEO's Column

Following some healthy and robust discussion at the last National Council Meeting (September 2 in Brisbane) it was agreed that we would work towards drawing up a new Strategic Plan for the AIB. You may or may not know that the most recent Strategic Plan expired for the organisation in 2014.

A new plan will give all of us a clear direction and purpose. From an overarching perspective, a new Strategic Plan will deliver a Mission Statement and Vision from which we can then drill down into developing well informed business planning/modelling etc.

We will also work toward developing an understanding of where we see and perhaps where we really need to be in the next 5 years. From here we will prioritise a number of new initiatives over the next 12 – 18 months that will not only help build a stronger Value Proposition, but ones that will assist in a business development sense as well. I look forward to bringing you further updates in this area.

A reminder that AIB CPD Online has been refreshed and relaunched. We are very proud when it comes to delivering first class and relevant continuing professional development and ask that you get behind this facility. As a professional in your field, you have a personal responsibility to ensure that you are up to date with everything from innovation, trends, legislation etc. Ahead, we will be bringing more AIB specific courses online and also hopefully sharing with you courses from other like - minded organisations. We also welcome Asta Powerproject – our new partner that is now fuelling our CPD commitment.

And finally, while it doesn't seem possible to start saying this already, I take this opportunity to wish all AIB members and partners (both personal and commercial) across the country a safe and happy holiday break. I trust that you will get a chance to spend some quality time with your family over Christmas and we look forward to another positive year at the Australian Institute of Building.

Greg Hughes AIB CEO



A message from the president

BY PAUL HEATHER, AM, JP, FAIB
National President Australian Institute of Building



Welcome to the fourth edition of Construct for 2017 and an update on matters AIB.

The 2nd September just gone marked the 270th occasion the National Council met to review and set in place programmes that will benefit all members.

However, before providing an overview to the coming year's activities it would be remiss of me not to introduce the AIB's leadership team/ National Council for 2017 / 2018.

National President - Paul Heather AM FAIB

Immediate Past National President –
Norman Faifer FAIB

National Senior Vice President:
David Burnell FAIB

National Vice Presidents:
John Gaskin AM FAIB & Peter Henden FAIB

New South Wales Chapter Nominee:
Ben Mathers MAIB

Queensland Chapter Nominee:
Jeffrey Palmer FAIB

South Australian Chapter Nominee:
Geoff Penley FAIB

Tasmanian Chapter Nominee:
Barney Phillips FAIB

Victorian Chapter Nominee:
Scott Reid FAIB

Western Australian Chapter Nominee:

Jason Thomson FAIB

Australian Capital Territory Chapter Nominee:

Dr Ron Webber FAIB

Hong Kong Chapter Nominee:

Lap Wa Lam FAIB

The gathering in Brisbane also showcased many projects presenting a vast array of professional excellence both domestically and internationally with the staging of the National Professional Excellence Awards. My sincere congratulations to all those who picked up an Award.

As we close out all KPIs identified for 2017 which I am happy to say are essentially on track, we will turn our attention to new activities and events for 2018 that will include (but not limited to) expanding AIB's professional standing into international markets; further promoting and supporting excellence through our Universities; seeking further opportunities to engage in the Vocational Education and Training (VET) sector; continuing to review and improve AIB governance; contemporise the Professional Excellence Awards to maintain relevance; the expansion of Corporate Partnership opportunities; enhancing and promoting the AIB's Value Proposition beyond our shores into international markets within SE Asia, India, Indonesia and the Middle East; the development of a sustainable advocacy strategy highlighting that the professional body is the link between the professional builder and the government.

These and many more initiatives will be the focus of a number of proactive conversations I hope throughout 2018 supported by the acumen of the members.

And finally, as this is the last edition of Construct for 2017, I wish you and your family a safe and happy festive season ahead and trust that 2018 will be a great year for you.



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Congratulations to the 2017 Building Professional of the Year, Stephen Jenkins

The judges noted 'The project, by CPB Contractors Pty Limited, to deliver a completely integrated, landscaped and secure compound for ExxonMobil's headquarters, included all site infrastructure and earthworks over a 30ha site. The team built a four-storey headquarters office building, a

community centre with swimming pool, sports hall and a tennis court, as well as a warehouse, sports field and sports amenities, high-security fencing and all internal road network, footpaths, car parking and landscaping.

The remote project was delivered to the

highest quality and within the desired time and budget, despite logistical challenges, limited availability of skilled workers, extreme weather, snakes, malaria and undetonated



Stephen Jenkins

explosive devices. Excellent safety outcomes were achieved'

"Stephen Jenkins was responsible for all aspects of delivery of the contract to a turnkey handover on time and to budget. His approach was to maximise the use of National workers, combined with Other Country Nationals (OCN) and an expatriate workforce. He achieved an average of 80% national workforce over the entire total project and implemented a culture which instilled world-class safety standards on site" said QLD Judging Panel Chair, Leigh Smith.



Permanent Facilities Compound (PFC) Project – Papua New Guinea

2017 Professional Excellence in Building Awards



National Professional Excellence in Building Award Winners

On Saturday 2 September, the Australian Institute of Building announced the National Professional Excellence in Building Awards for 2017.

At a sold out gala dinner at The Sofitel in Brisbane, guests heard how the judging panel was 'blown away' with the quality of the winning works from previous state and territory Awards programs.

National Jury Chair, Peter Henden said "The scope of the construction professional has now expanded to incorporate so many specialised fields, such as intelligent buildings and cutting-edge technology. The variety, quality and at times pioneering

ingenuity displayed by the entrants for the National Awards reinforced the long-held belief that these are the Olympians of our industry displaying outstanding effort and often mind-blowing results."

The judges came from a cross section of the Industry representing Academia, Engineering and Construction and were unanimous in their admiration for all of the finalists. There was a common mantra praising the extremely high level of quality and problem solving on display.

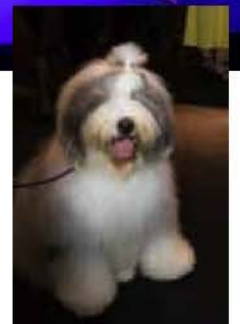
The projects reviewed included examples of innovation from new material handling techniques to pre-fabrication



of components. Safety was also a massive part of the submissions showing considerable inclusion of planning and



Above: Aerial artists provided entertainment from Wilde Applause



Right: The much-loved Dulux dog

risk reduction with discussion groups and open conversations being the new 'norm' in these iconic schemes.

The Jury went on to say that sustainability and environmental awareness had increased in the last few years, with this year seeing even greater steps forward with local environments being a major part of the successful planning and execution of schemes.

Online Marketplace for Engaging RPEQ Engineers

Eng Access (engaccess.com) is an online marketplace that connects registered engineers and clients; from job posting through to quotation, acceptance, and payment. As the first platform of its kind for registered engineers in Australia, Eng Access hopes to improve job opportunities for professional engineers and reduce the amount of time and money spent by clients attempting to secure their services.

Founders Dr Stuart McCarthy and Dr Matthew Robinson are both registered engineers themselves, and have a combined 30+ years of professional experience. They have experienced and observed first-hand the difficulties involved with matching clients and projects to registered engineers, and knew there had to be a better way that benefitted both parties. Stuart explains, "The requirement for professional engineers in Queensland to be RPEQ-qualified means clients must legally engage these professionals, however there isn't an efficient or cost-competitive way for this to happen. We designed Eng Access to provide clients with direct access to some of the top engineering talent in Australia, at competitive prices, without the hassle of cold-calling or relying on word-of-mouth referrals."

Queensland is the only Australian state or territory that legally requires engineers to be registered to provide engineering products or services, and these must only be within their

specific areas of expertise; confirmation of the qualification is Registered Professional Engineer of Queensland (RPEQ) post-nominal.

There are currently very limited existing products and services focused singularly on connecting engineers and clients. Alternate freelancing or project platforms may have some RPEQs within their network, however these connection services are not focused on RPEQs, so still do not make it simple for clients to identify, differentiate, and engage an appropriate expert, let alone enable consumer choice.

Within only a few months of launch, Eng Access has attracted RPEQ-qualified engineers from a wide range of disciplines including civil, structural, mechanical, environmental, chemical, and electrical engineering. With such an encouraging response from the engineering community, Stuart and Matthew are now focusing their efforts on raising awareness of the platform within the construction industry.

The pair are confident that the platform could make a real impact on the industry by cutting the cost of corporate overheads and allowing construction companies and contractors to choose engineers that best suit their needs and budget for each job or project, no matter how big or small. "With access to such a wide variety of professional engineers and greater control over the engagement process," says Matthew, "clients don't have to use the same person for the job that they always have or spend time and money calling around trying to find a registered engineer. Instead, they simply outline the requirements for the job or project online and then choose the best candidate from the quotes they receive. Clients can also browse all of the engineers on the platform and invite specific candidates to submit quotes".

Eng Access is for all RPEQs to benefit, whether registering as a sole trader, or on behalf of an SME or larger enterprise, with a view to attracting new work opportunities. Like online open tender publications, RPEQs within businesses should be encouraged to pursue enquiries on behalf of their employer, thereby not presenting conflict of interest issues.

In particular, Eng Access should provide significant benefits for the construction industry, providing a network for architects requiring an engineer to convert concepts into detailed designs, or even builders needing assistance with residential renovation projects such as removal of structural supports, adding an additional story to a dwelling, or even things like certification of retaining walls in the yard.

Eng Access is not solely driven by price-competition, even though this is one of the key benefits of the platform. The platform aims to improve the standard and standing of the engineering profession, in accordance with legislated Queensland requirements. By evening the playing field, clients can choose from a selection of qualified experts, maintain legal compliance, and pay experts what is agreed to be a fair and reasonable remuneration. By promoting a community of credible professionals, clients may have confidence and choice for expertise that they require, and engineers ought to be able to pursue their preferred work, possibly simplified with reduced corporate overheads.

Although Eng Access will initially focus on connecting clients with RPEQ engineers, as other jurisdictions are currently exploring similar registration systems, Stuart and Matthew plan to expand the platform accordingly as these new systems become established.

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Celebrating the Past and Embracing the Future

Construction Management at Western Sydney University has a lot to celebrate.

On 8 August at their new vertical campus at One Parramatta Square the Construction Management discipline hosted a gathering of students, alumni, staff and industry friends to celebrate two significant milestones.

The first was the 25th anniversary of teaching Construction Management at Western Sydney University. The celebration included a panel interview with two prominent alumni, Andrew Steventon and Andrew Fowler, reflecting on their studies and subsequent career paths. Both mentioned new technology as a key influence within the industry. The anniversary celebrations concluded with the cutting of a cake and a group photo of past and present staff.

Secondly, the University announced the launch of the new Centre for Smart Modern Construction (c4SMC) which aims to:

- maximise the potential of the construction industry in western Sydney, and beyond, as it responds to the challenges of sustainability, digitalisation, industrialisation and globalisation
- provide practical, innovative teaching and

research both at university and on site

It will do this with a combination of:

- Awarding scholarships to attract the best modern constructors at undergraduate and postgraduate level to complete their studies at Western Sydney University

- Offering highly sought after research grants into Smart Modern Construction (SMC) -Funds to invite the best international academics teaching in SMC to take up visiting appointments in the Centre, to directly share their insights with students, industry, academics, researchers, clients, industry associations and policy makers

- Funding academic and research exchange opportunities for Western Sydney academics to visit SMC hotspots to gather and rapidly disseminate new SMC insights,

- Seed funding to establish a SMC CoLab1 (a live construction site) at Western Sydney University's Kingswood campus which gives industry and students applied construction exposures to develop new capabilities by showcasing and proving SMC innovations

Foundation Contributors to the Centre for Smart Modern Construction are:

-Prime Constructions

-Qanstruct

-Strongbuild

-Hansen Yuncken

-Austruss

-Weathertex

The event included presentations by the Vice Chancellor, Dean, Deputy Dean and the Professor of Built Environment and Construction Management.

The Vice Chancellor spoke passionately about Construction Management at Western Sydney University and the key role of staff and industry collaboration to establish and maintain the course. Another indication of support from the VC for the new centre was the elevation of David Chandler OAM FAIB, Industry Engagement Lead, to the role of Adjunct Professor shortly after the event.

The Dean shared details of Construction Management graduates who have a 91% employment rate with a student satisfaction rate of 81%, which are amongst the highest in NSW universities.

The Professor of Built Environment and Construction Management focused on the important role of the Construction Industry as part of the Western Sydney Economy.

Contacts:

PROGRAM MANAGEMENT

Professor Srinath Perera PhD FRSN FAIB

Director of c4SMC, Professor of Construction Management and Built Environment at Western Sydney University

E: Srinath.Perera@westernsydney.edu.au 49

INDUSTRY ENGAGEMENT

Adjunct Fellow, David Chandler OAM FAIB, c4SMC Industry Engagement Lead

E: d.chandler@westernsydney.edu.au

PHILANTHROPIC SUPPORT

Scott Lyall, E: S.Lyall@westernsydney.edu.au



Construction Management at Western Sydney University celebrates 25 years

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The sky is the limit with Sydney's tallest residential tower

The Greenland Centre is set to become the centrepiece for a city-based residential re-style. Once completed, the residential building will soar at 235 metres, being the tallest structure of its kind in Sydney.

What was the old Sydney Water office tower on the corner of Bathurst and Pitt Streets, will now be transformed into a highly-desired residential icon with 470 apartments and six penthouses across 68 levels. To make the most of available views, Greenland Centre apartments will include "Sydney Balconies", described as a unique design feature creating true indoor-outdoor connections with glass fronted balconies to protect from wind and noise.

Melbourne based builder, Probuild has partnered with the Liberty OneSteel Reinforcing team in NSW to supply over 4,500 tonnes of reinforcing steel to the project. New structural works currently being carried out will incorporate the existing steel frame, that has been part of the site since the 1960s. The development, due for completion in early 2020, has already proved successful with all apartments and penthouses sold, some for as much as \$11M.

Grant Rennett, Liberty OneSteel Reinforcing's NSW Manager said, "This is our first opportunity to be able to partner with Probuild, and we are excited to be part of such a prestigious development.

"We signed contracts on Friday 30th June 2017 and look forward to working together over the next 18 months".

The project is being developed by the Shanghai government-owned Greenland

Group, which has led to the unique numbering of each level. Residents will notice the removal of reference to the number '4' throughout the building, which has negative cultural significance in the Mandarin Chinese culture. Consequently, the tower will actually have a level 82.

In another positive step to celebrate culture, the Greenland Centre will also include a 2000 square metre Creative Hub, spanning over five floors of the building. This space will be managed by the City of Sydney and will be used for the practice of dance, music, film theatre and the visual arts.

For more information visit:
www.greenlandaustralia.com.au/en/greenland-centre



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Project Delay, Disruption & Claim Management

BY GEOFF BRENNAN, PARTNER AND SHANNON SCHWARZ,
SENIOR ASSOCIATE, THOMSON GEER LAWYERS

Delay and disruption on a project can quickly result in a disaster for any contractor; increasing time related costs and risking liability for liquidated damages to the principal. This article:

- Defines Delay and Disruption and terminology often used
- Outlines issues you should consider in case of a potential claim
- Outlines how delay and disruption may be measured.

Thomson Geer Lawyers has successfully provided assistance to contractors in making (and defending) claims for both delay and disruption on projects. Shannon Schwarz, a Senior Associate in Thomson Geer's Construction team, highlighted the following issues at a recent AIB continuing professional development presentation held in Adelaide.

Keep in mind and do not confuse the separate types of claims and terminology

- Delay is a measure of time; being work activities (or a project) being prolonged. Typically it may be represented by a stoppage of works.
- The critical path is the longest path of activities to completion. A delayed activity on the critical path may entitle a contractor to an extension of time to completion.
- Disruption is a measure of disturbance, hindrance or interruption to normal or planned working methods which results in lower productivity or efficiency. Typically, it may be represented by works progressing slowly.

If your project is delayed, you should check the following possible issues

- Notice Requirements. If your contract requires the submission of a notice of delay, or something similar, you must issue this notice within the timeframe required. Courts have held that non-compliance with any required timeframes can invalidate a delay claim.
- Responsibility. Your contract will apportion the risk of certain delay events as between the contractor and the principal.
- Evidence. You need to keep

contemporaneous documentary evidence of the delay. If you need to make a delay claim, it will be necessary to rely upon site diaries, formal notices and updated programs.

Issues to consider when measuring delay

The correct methodology to establish and measure a claim for delay (and identify the critical path) is a matter of programming skill and experience and is an evolving area of construction law which should be approached carefully by any contractor.

However, the following issues are worth considering when measuring delay:

- The terms of the contract is the starting point which determines whether a delay claim can be brought and the requirements and nature of any delay claims.
- Whilst most experts prefer the use of the Time Impact Analysis methodology, which involves in general terms the analysis of the prospective impact of an event or events on the contractor's intended progress of work as set out in an agreed program; the actual methodology used is a matter of available evidence and the judgement of an expert delay programmer.
- Courts have had differing views in relation to whether delay should be assessed prospectively or retrospectively, however, it will depend on the terms of the contract.
- A contractor's contemporaneous intentions are often a key factor in measuring delay. Accordingly regularly updated forward looking programs are a key component of being able to successfully pursue a delay claim.
- Quantifying delay claims can be difficult as it requires careful judgement as to whether the claim should be calculated with regard to the costs incurred when the delay occurred or (in the case of delay to the project) the costs incurred during the prolonged time on site. In general, the former would be preferable for contractors as it is likely that less costs would be incurred at the end of a project.

Relevant points to take into account for claims for disruption are that

- They can be a separate and distinct type of claim to a claim for an extension of time

for practical completion and for delay costs. In this case, a contractor should be aware if the contract provides for an entitlement to claim for sequencing or time-related costs under the contract (for example as a variation).

- In order to establish a disruption claim it is necessary to identify the causal link between the event and the change in progress of the works. Disruption claims may be measured in a number of different ways including by measuring actual progress against a planned rate of progress, by comparing actual progress during impacted and unimpacted periods, or by the acceptance of direct evidence of experienced on-site personnel supported by contemporaneous documents as to the period of disruption.

Where to obtain further information

The above information is general guidance only on information you should consider in relation to delay and disruption claims and is not legal advice. Each contract and project will be different, and for more guidance on issues relating to delay and/or disruption in construction projects, we recommend:

- The Society of Construction Law's Delay and Disruption Protocol (Edition 2) (available online: https://www.scl.org.uk/sites/default/files/SCL_Delay_Protocol_2nd_Edition.pdf); or
- that you consult an experienced programmer and/or construction lawyer.

Thomson Geer is a large Australian corporate law firm. It has around 500 people, including 96 partners and a national construction team operating out of offices in Sydney, Melbourne, Brisbane and Adelaide. For more information visit www.tglaw.com.au



Thomson Geer's Project Delay and Claim Management seminar in Adelaide. Pictured: Will McLeay MAIB, Shannon Schwarz, Geoff Brennan, Tim Readman FAIB & Jeremy Whitehead FAIB.

Acoustic excellence at Darwin educational facility

A unique educational facility, Darwin High School in the Northern Territory is not only surrounded by native tropical vegetation, it's also located a stone's throw from the Arafura Sea. The Northern Territory Government recently worked on an extensive project with long-term CSR Gyprock customer and highly awarded Plasterer, Roger Bailey of

Bailey Interiors, to help solve a recurring issue with failing ceiling systems. "There was a need to manage the sound reverberation and reduction of noise within the learning environments at Darwin High School, so an acoustic ceiling tile was a necessary inclusion", says Mark Taylor, Director of Buildings Maintenance and Minor Works, Northern Territory Government.

This project was considerably large in scale, replacing approximately 3000 square metres of ceilings in the administration building of the high school, all whilst working with a limited time frame during mid-term school holidays. From this range of custom made ceiling tiles, Roger Bailey put forward the high quality Shadex option, a 600mm x 600mm acoustic bespoke ceiling tile made with Gyprock Casting Plaster – a grit free speciality plaster that produces a strong moulded product with a clean cast face. Incorporating a 3D grid pattern of tiny square blocks randomly aligned on the tile, Shadex provides a rigid, faceted diamond appearance once installed. "I wanted to ensure that the ceiling tiles created were unique in style, aesthetically pleasing and most importantly, offered excellent sound absorption capabilities", explains Bailey.

The Shadex design offered an attractive ceiling solution with the highest acoustic rating possible to reduce noise transfer and sound reverberation in crucial learning environments. The Northern Territory



Government is extremely pleased with the successful outcome and innovative product delivered by Roger Bailey, with the refurbished ceiling improving the overall performance of the administration space.

For more information about the Bailey Interiors range, visit the website at www.australainplasteracoustics.com.au, or for more information about Gyprock, visit the website at www.gyprock.com.au

AIBS Policy – Building Regulatory Reform in Australia

An effective system of building regulation promotes quality, safe, compliant buildings, provides a high level of consumer protection and confidence and, if implemented properly, can provide greater efficiencies and limit what is generally seen as unnecessary 'red tape.'

The AIBS Policy on Building Regulatory Reform in Australia seeks to identify and define the key components of an effective building regulatory system and to demonstrate that within such a system many aspects are interconnected and support each other.

AIBS believes that this policy represents best practice in a building regulatory system. However, AIBS also recognises that there may be practical limitations to its implementation. Examples of these limitations include barriers within the Australian constitution and the current complex regulatory environment.

The policy recognises that there have been significant advances in the building and construction industry over the past 30 years that have not been matched by significant advances in the regulatory framework and approach.

The policy seeks to provide a guide to a more contemporary framework and approach to the building regulatory environment in Australia.

You can view the policy at www.aibs.com.au



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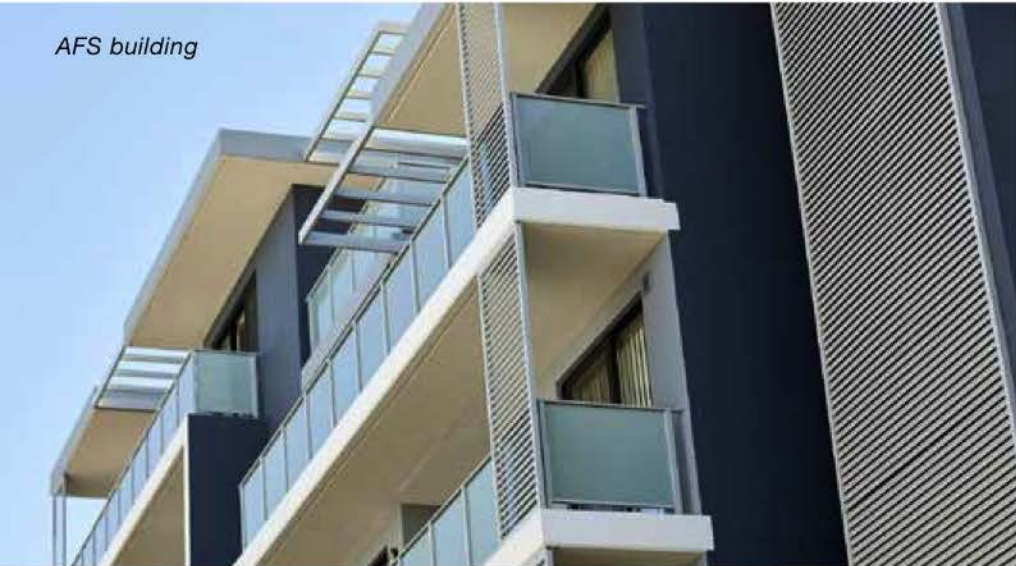
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• Applications include lift and stair walls, blade walls, facades, corridor walls, party walls, boundary walls and balustrades

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"REDIWALL® is a time-saving answer to conventional concrete and masonry, and offers builders a quick, cost-effective solution, whether it involves long-runs or complex customising," Ryan explains.

"The ingenious panels are polymer-based and can be supplied sized-to-fit or readily sawn on site. Installation can be done by any formworker as the pieces, including corners, simply snap in or slide together to connect against each other onto a track. REDIWALL® also provides a clean, even, water resistant, low-maintenance surface that for many applications doesn't require finishing. No wonder builders keep using it to save time and money."



AFS logicwall® profile

Call for Certainty as Major Construction Projects continue to Improve

A mid-year update to the Queensland Major Projects Pipeline report has shown that state revenue from major construction projects is expected to rise by 140% by 2021.

The report, which was released on 27 September, 2017 by the Queensland Major Contractors Association (QMCA), Construction Skills Queensland (CSQ) and the Infrastructure Association of Queensland (IAQ), suggests that public infrastructure and local procurement preferences will deliver a major boost to Queensland's economy over the next five years.

It also confirmed that the increased number of civil construction workers recruited during the mining construction boom period between 2003 and 2013 meant that demand could be met if projects do not suffer serious delays or obstructions.

The first of its kind in Australia, the report detailed a five-year pipeline and forecast of both public and private sector engineering projects in excess of \$50 million across Queensland. The half yearly report update reflects the need for continuous access to up to date information in an industry whose outlook can change quickly based on whether or not a major project is on track to progress.

QMCA President Iain Ward said he was

pleasantly surprised by the findings.

"Things are really looking up for Queensland. I'm encouraged by the mid-year results and look forward to seeing further improvements as new opportunities are identified and funded," he said.

"I'm also excited by the progress some of our larger projects are making, such as Inland Rail, Cross River Rail and Adani that are all great wins for the state.

"Now what we need is surety so we don't lose momentum.

"Our industry is closely tied to Queensland's economy so we're vulnerable to a range of external factors. As well as influences such as commodity prices and the Australian dollar, there's also the very real threat of damaging global trade sanctions, which have the potential to be devastating.

"We need to build a sustainable industry that is confident and resilient to political change which means making a commitment to future projects and securing funding in a more timely manner."

IAQ CEO, Steve Abson, said funding announcements for major projects had improved the outlook for the infrastructure sector, and members were reporting more confidence in Queensland.

"The biggest challenge we now face is the

ability of all levels of Government – Federal, State and Local – to commit to future project funding.

"There are some significant projects in the pipeline, particularly for regional Queensland, and considerable question marks over how they will be funded," Mr Abson said.

CSQ CEO Brett Schimming said that since the original report was launched in April, the value of the major funded Queensland engineering construction projects has increased.

"Specifically, funded work in the pipeline has increased by 17 per cent to \$25.1 billion, work under construction has lifted 19 per cent to \$19.6 billion and announced work has increased 47 per cent to \$3.9 billion," Mr Schimming said.

"Whilst it has been a difficult transition from the sharp falls which followed the historic highs reached in 2012/13, increased funded and committed projects have reduced the risks to the industry and it would appear the worst has now passed for Queensland."

Mr Schimming said the outlook for Queensland's construction workforce continues on the path outlined in the April report with the civil construction workforce expected to focus on delivering public infrastructure for the next few years.

The great Australian dream is about more than just a house

"As our cities grow, we have a choice. Do we want urban sprawl or do we want compact cities? Given the expense of urban sprawl, as well as the relatively poor social outcomes for people living in car dependent locations, increasing density is a better outcome." Nerida Consibee, Chief Economist, REA Group

The outlook on housing affordability in

Australia's capital cities looks pretty grim and industry projections aren't any brighter. In fact, according to leading professional services firm PWC, 'Australia is facing a housing affordability crisis across its major cities'.

So, the natural question to ask is ... what do we do to solve this problem? REA Group Chief Economist Nerida Consibee says that while us Aussies still dream of the big house on a big block, we're accepting that to be a city-dweller that might not always be possible. And within this new way of thinking, there may be a solution.

"Overwhelmingly, Australians prefer to live in a big house on a big block. But given a choice between a large home on the urban fringe and small home close to the city, people start to make trade-offs," Nerida said.

"There are a lot of different development types occurring from townhouses to apartments. Some are great examples of ways of creating higher levels of urban density, others aren't. The ones that seem to work are those that are created as liveable environments, as opposed to low cost stock aimed purely at investors.

"When I present to investors, I frequently

tell them to consider whether they would be prepared to live in the apartment they are looking to buy. If the answer is no, then these are the types of developments that will struggle to find tenants as well as be re-sold at a later date."



REA Group Chief Economist
Nerida Consibee



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War on Waste: The 'Battle' to minimise waste from NSW Construction Projects

Currently construction produces more than 19 million tonnes of waste, 45% of which is deposited in landfill. This results in increased energy consumption, contamination, landfill reliance and depletion of new finite resources. From a construction industry perspective, accountability requirements from all levels of Government, compliance with legislation, national, local and industry targets (both public and private sector), together with client driven requirements/ specifications do not appear to be making a significant difference.

To address this issue, Professor Peter Davis, Chair, Construction Management at University of Newcastle is leading a team challenging existing waste management strategies in construction. The team has recently been awarded a \$146,292.00 New South Wales (NSW) Environmental Trust Research grant. The Trust encourages projects in both the public and private sectors that will, or are likely to, prevent or reduce pollution, waste streams or environmental degradation, of any kind, within any part of NSW. Only eight grants were awarded by the Trust from 187 applicants in a strongly competitive field. Industry supporters of the project at the present time include; Hansen Yuncken, Multiplex, Richard Crookes Constructions, Veolia Environmental Services PTY Ltd, Cross Connections Consulting, Bingo Industries, Clean Valley and Concrush.

Professor Davis will work with Associate Professor Willy Sher and Dr Patrick Tang to evaluate existing strategies to develop a theoretical model to substantially change the way waste materials leave construction sites. According to Professor Davis, a focus on waste management strategies in the construction industry "...is way overdue and bound to become an essential element..., it won't be too long before waste management becomes an integral part of construction practice in the same way that safety is applied to contemporary construction management".

Construction site waste management logistics have not changed for a considerable time. New technologies and processes available in other sectors are being neglected despite increased levies and tipping charges designed to encourage changes in procedure, practice and people. Tipping fees affect project tender costs, productivity and outputs. Anecdotally, waste management is reported to represent 0.035% of typical construction/ infrastructure tenders. This project aims to identify existing strategies. It will create a taxonomy of current waste management practices/ processes from construction site to recycling facility/ landfill and identify and evaluate new processes or technologies that can be incorporated within existing activities/ processes to make them more environmentally-friendly and cost-effective for Industry. The project team will categorise waste more effectively and identify waste quantities using case study projects. Uniquely, they have identified three heterogeneous projects to evaluate through the research duration. The team is leasing closely with respective contractors and waste stream companies. Equipment is being located for recording and reviewing materials management record-keeping across all case study sites. The project team intends to use a novel and comprehensive approach for classifying the mixed

waste that is removed from the sites. With access to at least three case study sites (Hansen Yuncken, Multiplex, Richard Crookes Construction) members of the team will place wireless movement-actuated digital photography hardware capable of capturing waste loaded into skips and bins in real-time. Remote cloud transmission of data to home-base will allow for asynchronous and remote detailed classification and cataloguing. This is an advanced measurement approach compared to current practices where budget allowances are simply drawn down as waste is removed from site. The research approach should provide a more detailed and accurate representation of actual circumstances. Working with both upstream and downstream organizations in the waste process represents a novel approach to the problem of managing, monitoring and improving waste diversion outcomes. The intention is to offer solutions to reduce the 'bottlenecks' of logistics (waste or recycle) on complex and logistically constrained building sites. As more urban renewal projects come on stream (NSW notwithstanding), logistical constraints will become the norm. The team believes that a theoretical model for improving waste management will assist in dealing with logistics challenges and deliver tangible waste reductions.

A qualitative methodology of investigation will be employed by the team. This involves field study, analysis and interpretation followed by outlining practices and interventions to develop new strategies. This approach is supported by a research higher degree student whose scholarship is funded by the University of Newcastle Research Scholarship scheme and the NSW Environmental Trust. In addition, a part-time research assistant is employed to assist in administering the project. Through a systematic literature review, factors that influence process and organizational aspects will be identified. In addition, the perceptions of construction managers will be collected via interviews and analysed using Nvivo qualitative research software. Psychological contracts, which are based on mutual obligations between people, will be introduced to examine the relationship and interaction between different stakeholders. Process factors will include logistical constraints of construction sites in dealing with waste. Organizational factors will include the decision-making process and other factors that influence the implementation of waste management processes of construction companies.

The project spans two and a half years, commencing in 2017. In the first year, interviews and focus groups will be conducted to determine the current situation. The project team will be analysing materials arising from construction sites that would ordinarily be sent to waste. In the second year, the team will, once again use qualitative techniques, including a Delphi iterative methodology of mainly focus groups within a workshop environment, to investigate a broad range of alternative strategies to produce a new theoretical model for improving waste management. Additional workshops in the first part of the third year will enable the team to assess the overall feasibility of the final proposal and produce a final report setting out a theoretical model for improving waste management.

The project team members are in the process of conducting a series of interviews with the above mentioned industry partners to identify the factors (process, organization and people) influencing the waste stream process. All stakeholders are being interviewed to capture an overarching picture of waste management in NSW. Alongside the interviews, three cameras are being installed, focussed on the waste bins of three construction projects. The team proposes to use deep-learning to categorise the waste materials. In addition to interviews with industry partners and photographic data collection, a continuous and systematic literature review of previous and current research findings will enable the researchers to develop a theoretical model of better waste management processes. This will be tabled next year when the team will conduct a second round of interviews with industry partners. With the evaluation and feedback from these partners, the team will finalise their theoretical model leading to further improvements to waste management processes.

The project sponsor, the NSW Environmental Trust, has recognised the potential value and significance in the research. Other stakeholders including; the Australian Institute of Building, the Master Builders Association, employer organisations and other kindred institutes, will benefit from the research outputs. The research team has structured a detailed communication plan to promote the value and significance of the research. The project stakeholders, namely Hansen Yuncken, Veolia, Multiplex, Lend Lease and John Holland Group will benefit from the research. Australian construction academics and trainers will benefit from attending presentations at the Australasian Universities Built Environment Association (AUBEA) conferences; Hunter region wider communities of practice associated with recycling from attending proposed public lectures; general public with an interest in construction and or recycling via reading news stories via the University of Newcastle website; press releases; social media; wider NSW Environmental Trust programs community reviewing executive summaries of final report distributed in association with NSW Environmental Trust via Bin Trim and Circulate programs.

Innovation is key to productivity improvement. Conceptualising, defining, articulating and assessing innovations is challenging for builders. The overall findings suggest that internal organizational innovation (including people and organizational factors) and process innovations (greater output with corresponding inputs) account for the majority of construction innovations. When it comes to winning the war on waste, innovative approaches and strategies along with a review of current methods/processes of waste management are key to success. Finally, the victory over waste is important especially when it comes to construction, where waste has persistently undermined the sustainability of built environment projects. The research team is committed to deliver an effective theoretical model for waste management by 2019, as well as to contribute to the sustainability of NSW construction projects.

For further information please contact: peter.davis@newcastle.edu.au

Algorithms design Hamburg concert hall: "It would be insane to do this by hand"

The recently opened Elbphilharmonie concert hall in Hamburg was partially designed by algorithms.

Detached from the rest of the building for soundproofing reasons, the 10,000 panels that line the central auditorium are the result of parametric design, a process of creating multiple individual designs using algorithms.

A million individual cells ranging from four to 16cm long are cut out from the panels, which balance the sound and reverberation across the auditorium.

Deeper and wider cells are needed at the back of the hall, while smaller and shallower holes are located on the ceiling.

A similar technique has been used in the Neoclassical Wiener Musikverein venue, home of the Vienna Philharmonic orchestra.

The ivory coloured gypsum fiber acoustic panels contain a seashell motif and were designed by Swiss architect Herzog & De Meuron with help from German studio One to One.

Benjamin Koren, founder of One to One and writer of the algorithm that created the design, said: "It would be insane to do this by hand. That's the power of parametric design.

"I hit play and it creates a million cells, all different and all based on these parameters.

"I have 100% control over setting up the algorithm, and then I have no more control."

Yasuhisa Toyota, the acoustician on the project, built a 1/10 scale model of the hall interior and conducted acoustical experiments in the model to study more details about how sound would behave in the space.

Toyota said that "3D modelling was used to determine where to place joints in the panels of this material and then the panels were fabricated at an off-site factory".

The vineyard style concert hall contains 2,100 seats rising up around the stage, 1,000 light bulbs made from hand blown glass and is located 50m above ground level in Hamburg's historic port.

Although parametric design is thought to be a modern invention characterised by computer design systems and procedural generation, it has its roots in architectural tests by Sagrada Família designer Antoni Gaudí.

Gaudí preferred to use models instead of drawings as design tools and would use the traditional technique of hanging chains to form a catenary curve and load-bearing arch but

would change the tension and compression of the structure, placing multiple arches on top of each other in the form of chains, changing and testing alternative parameters of a real world analog model in the way that software does today.

Gaudí would also create upside down models of his designs then picture them the right way up with mirrors. He would also colour in photographs of his wire frame designs to create solid model renderings.

Despite the individualistic design work on the project, it was delivered six years late and €600m over budget, with criticisms aimed at contractor Hochtief for "an unrealistically low bid" and Herzog & de Meuron for straying from the planning schedule.

Article written by Joe Quirke for Global Construction Review



Image courtesy of Iwan Baan

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LifeArk provides modular housing for disaster victims either on water or land



Images courtesy of LifeArk

A product called LifeArk has been created for disaster victims which can be located either on land or water.

The pre-fabricated, modular housing system is built by being snapped together and can be fully built by unskilled labourers with standard tools, and requires a quarter of the total building time of traditional construction.

The project can be 100% sustainable and

its modular design is claimed to allow “infinite configuration options” to create a number of unique spaces, enabling the master planning of communities.

LifeArk modules are made with high-density polyethylene (HDPE) filled with polyurethane foam, providing structural integrity and insulation.

Those behind LifeArk imagine a community with shared facilities such as a health

centre, school and farm that are connected modules.

LifeArk also say that their product could be used as an alternative to sprawling slum housing, those living near floodplains and the homeless community.

The life expectancy of the modules is between 20-30 years and are maintenance free.

GDS Innovation Lab, the social innovation R&D arm of American headquartered firm GDS Architects, designed the project.

Charles Wee, head of GDS Architects, says: “There are hundreds of millions of people along floodplains around the world who live under threat.

“(The modules are) like LEGOs, you just ‘click, click, click’ and you can bolt the parts together.

“They all fit together in a shipping container and can be transported to site.

“While manufacturing is being done we would prep the site, and then it’ll be easy to bolt the module on top.

“All the machinery will be inside already so the only skilled labour needed on site is connections to sewers. But there’s also the option for 100% off-grid capability.”

LifeArk prototypes will be built on a lake and attached to a hydroponic farm in Texas in March 2018.

Article written by Joe Quirke for Global Construction Review

UK University creates solar generating glass bricks

Researchers from England’s University of Exeter have created a new technology they say “could revolutionise the construction industry”.

Academics from the Engineering, Mathematics and Physical Science department have developed a solar power technology that fits into glass blocks.

Facades using the product, called Solar Squared, will be able to generate electricity while allowing greater amounts of daylight. The blocks also provide improved thermal insulation, developers say.

Solar Squared’s patent-pending design consists of an array of optical elements that focus sunlight on small-sized solar cells.

These are incorporated within the glass bricks during manufacture and they collect diffuse components of sunlight, making it useful for capturing solar energy in urban areas.

The modular design is scalable and intended for flexible structural integration.

The University said “that many construction materials deployed on the exterior of buildings could become energy-generating” and that “making slight adjustments to the manufacturing process of building materials could have a fundamental impact on the planet’s energy requirements”.

Dr. Hasan Baig who worked on the project and is based at the Environment and Sustainability Institute in Cornwall, said: “Buildings consume more than 40% of the electricity produced across the globe.

“Deployment of standard solar technology is limited by the large area requirement and the negative visual impact. We wanted to overcome these limitations by introducing technologies that become a part of the building’s envelope.



Image courtesy of Solar Squared

“We now have the capability to build integrated, affordable, efficient, and attractive solar technologies as part of the building’s architecture, in places where energy demand is highest, whilst having minimal impact on the landscape and on quality of life.”

The team is currently looking for test sites to demonstrate the effectiveness and potential of Solar Squared and seeking investment for their new start up.

Article written by Joe Quirke for Global Construction Review

Evolving the Industry: Ten Years of the CostX Educational Program

The CostX® Educational Program first began in 2007; established in order to provide industry-leading technology to educational institutes free-of-charge. It is this year celebrating its 10 year anniversary. Dr. Ajibade Aibinu from the University of Melbourne has recently written a case study on the implementation of CostX into their program:

“For the past 8 years, the Melbourne School of Design at the University of Melbourne has progressively integrated the use digital technology and BIM into the cost management curriculum. Students are being exposed to hands-on 2D and 3D digital take-off and 5D model-based quantity extraction and estimating using Exactal CostX. Students engage with both the fundamental and advanced features of digital tools for quantity take-off and cost

estimation.

CostX® has proven to be one of the leading tools in digital estimating and 5D-BIM which is making take-off a lot quicker and much more reliable. Students in the “Measurement and estimating” subject at MSD are able to measure and extract quantities of building work items using 2D (Vector and Raster files) and 3D models and on that basis prepare a Cost Plan, using the rate library as well as generating the associated reports. Students also create their own 3D BIM using BIM authoring software and thereafter using CostX® they can automate quantity take-off using BIM template to extract quantities from BIM object properties thereby enriching their understanding of 5D-BIM estimating workflow.

For the past 3 years, the University of Melbourne together with other institutions locally and internationally has also implemented an annual event called ‘BIM Immersion and Competition’. The event has been designed to help participants understand digital concepts and processes as well as how they can be applied in practice. This annual initiative is helping to educate construction students (future professionals) and make them BIM literate. During the event, participants engage with the practice of BIM applications in

different ways including model-based cost estimating with CostX®. They are introduced to the concept of model mapping and model validation and the use of the CostX® Auto-revisioning tool for viewing design change updates.

The integration of CostX® along with other BIM tools into the curriculum is benefiting the students. BIM Education using real world digital tools including CostX® is increasing the awareness of the opportunities and benefits of digital technologies as well as simplifying complex digital concepts and scenarios for students. Working with tools such as CostX® is helping to demonstrate the impact of digital processes on practice and on the future of the industry, as well as what is possible regarding the benefits and challenges of model-based processes. Students have been making the best use of CostX® to model map a BIM project file, object mode measure for refinement of measurement, BIM templates to understand the classifications and available coding systems and automated cost planning as well as looking forward to more collaborative features such as user defined properties data extraction and live linking.”

For more information on CostX please contact our sales team on sales.au@exactal.com or 1300 006 222.

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Simonds Homes launches new inspirational Design Gallery in Adelaide



Helping home buyers fulfil their dream of designing and building a personalised home, award-winning builder Simonds Homes has recently opened their new and contemporary Design Gallery in Adelaide.

Located in the heart of the city, the Simonds Homes Design Gallery Adelaide gives clients a comprehensive selection of the latest premium interior and exterior finishes, products and colour palettes, as well as detailed room displays making it a space of inspiration and unparalleled choice.

“The new gallery is a selection centre for clients who are currently or thinking about building and those who are about to go through the Gallery journey,” says Matthew Chun CEO of Simonds Homes.

The latest addition to the nationwide suite of Simonds Homes Design Galleries is a ‘one-stop-shop of inspiration’ adds Chun. “With every new gallery, the aim is to showcase the latest and greatest products and

service offerings. Every decision is done in the showroom, from carpet and tiles to insulation and window coverings – there is no need to be sent all around town, flick through countless brochures or search for things yourself – we have everything you need to personalise your home, under one roof.”

The Adelaide gallery features three full size display bathrooms and four complete kitchens. There is also a dedicated lighting room which showcases a large selection of lighting options including downlights, pendants, light switches, fans and more.

Continuing with the theme of offering customers more choice, there’s a Beaumont tile area with over 400 options on display, while the Haymes paints range features countless colour choices. For kitchen and bathroom finishes there’s a large Laminex selection of colours and designs, as well as extensive Caesarstone

products. Other selections include doors, flooring, basins, tapware, window furnishings and appliances.

Not just limited to interior finishes, the Adelaide Simonds Homes Design Gallery also includes an abundance of exterior choices such as bricks, roofing, windows, garage doors, colorbond and external paint colours. “The flow of the gallery starts with external offerings then goes into internal,” says Chun. “From the front of a new house to the back – all selections are done in the gallery giving our client complete freedom to customise their home as they want it. Our goal is to always be transparent– what you see in the Gallery, is exactly what you will get in your new home.”

For those clients who are having trouble choosing from the extensive selection, Simonds Homes experienced interior designers and gallery consultants will guide you through offering suggestions and advice. Additionally, custom-ordered products are not out of reach. “With such a large offering on display, all needs are catered for,” says Chun. “However, if there is a particular product that a client is after and is not on display, our supplier list is quite extensive and we will do our best to accommodate requests.”

Sure to be popular with both new homeowners and those looking to re-build, the Simonds Homes Design Gallery Adelaide makes it easy for South Australians to create their dream home and unlock their personal style.

For further information visit www.simondsgallery.com.au

China builds “record-breaking” high-speed rail tunnel under Great Wall



*Great Wall of China at Badaling
(CEphoto, Uwe Aranas / CC-BY-SA-3.0)*

Nerves are taut in China over the structural integrity of the Great Wall at Badaling as engineers blast a tunnel deep underneath for a record-breaking high-speed railway, and a cavernous station.

The 12-km-long tunnel will sink to a maximum depth of 432m under the most visited section of China’s Great Wall, completed in 1504, to carry a trains

running at 350km/h between Beijing and the city of Zhangjiakou ahead of the 2022 Winter Olympics, which the two cities are co-hosting.

Engineers are using “precision micro-blasting” technology to dig the tunnel so as not to damage the world-famous monument above, reports state-owned newspaper, Global Times.

The project’s chief engineer Luo Duhao said precision micro-blasting has a velocity of 0.2cm per second and generates a weaker tremor than traditional blasting.

Since February there have been 4,500 blasts.

“I myself once stood on the Great Wall and I could not feel the blast at all,” Dai Longzhen, deputy manager of the Beijing-Zhangjiakou High-Speed Railway Line, told the Global Times.

It took Chinese engineers months to

“choreograph” the best point for the 174-km railway to intersect the Great Wall, Global Times reported.

When complete in 2019, the railway is expected to cut the journey time between the two cities from more than 3 hours to around 1 hour.

As well as the tunnel, engineers are building a large station 102m underneath the Great Wall. The station is reported to be 36,000 sq m in area.

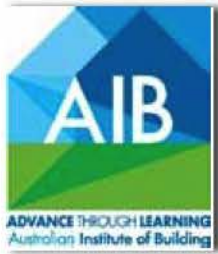
Dai Longzhen said the construction area and the depth of the station is “record-breaking”.

With the Great Wall at Badaling surrounded by parks and scenic areas, the station is being built underground to avoid damaging the environment, Dai said, and to showcase China’s rail construction capabilities.

Article written by Global Construction Review

HARBORD PUBLIC SCHOOL, FRESHWATER NSW





AIB NEW MEMBERS Section

On behalf of the existing membership, the Chapter Committees and the National Council we extend a very warm welcome to all these new additions to the AIB family.

AIB NEW MEMBERS

21 July 2017 – 12 Oct 2017

Cater Nick FAIB	WA
Chan Andrea Ho Fung AMAIB	Hong Kong
Cheng Shu Yan MAIB	Hong Kong
Cheung Leung MAIB	Hong Kong
Colonico Johnny MAIB	WA
Dean Stephen AMAIB	VIC
Fong Ho Chung AMAIB	Hong Kong
Hampel Nathan MAIB	WA
Kai Wah Chan AMAIB	Hong Kong
Kehoe Niall MAIB	WA
Kip Stephen FAIB	VIC
Lai Po Ming AMAIB	Hong Kong
Lam Chak Cheung MAIB	Hong Kong
Lam Chi Kin Ken MAIB	Hong Kong
Lau Kwok Hung MAIB	Hong Kong
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Wong Ka Chun MAIB	Hong Kong
Wu Mau Lok AMAIB	Hong Kong

Head office contact details

Greg Hughes
CEO

ceo@aib.org.au

Unit 10, Building C, Trevor Pearcey House, Traeger Court,
28-34 Thynne Street, Bruce ACT 2614

PO Box 705 Jamison ACT 2601

National Office Telephone +61 [0] 2 6253 1100

National Office Facsimile +61 [0] 2 6253 4411

Accounts	accounts@aib.org.au
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Chapter offices

New South Wales & ACT	nswbuild@aib.org.au
Queensland	qldbuid@aib.org.au
Victoria	vicbuild@aib.org.au
South Australia & NT	sabuild@aib.org.au
Tasmania	tasbuild@aib.org.au
Western Australia	wabuild@aib.org.au
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