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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:



A message from the president

BY PAUL HEATHER

National President Australian Institute of Building



Welcome to the first edition of Construct for 2017 and the first occasion I write to you as National President. Like all those that have travelled this path before me, is it my honour to follow in their footsteps and to serve our Institute.

Before outlining with you our newest membership programmes, I thought this a perfect opportunity to reflect on the Institute's humble beginnings.

The Australian Institute of Builders as it was known, was formed in 1951 with the founding members comprising of representatives from RAlA, IEAust, MBFA, Building Diplomats Association of NSW associated with the then Sydney Technical College.

To celebrate the formation our fledgling Institute, on the 23rd November 1951 the Foundation Dinner was held in Sydney and during this event Sir Robert Menzies, Prime Minister of Australia was presented with a Certificate of Honorary Fellowship.

Our early major milestones included the Incorporation of the Institute in 1955, the granting "Armorial Bearings" in 1960 and Incorporated by Royal Charter in 1969.

As it was intended in 1951 by the founding members, our Institute has become a leading body of focus, valued for the services provided to the membership, a provider of continuing professional development, application of standards and ethics and a source of authoritative and visionary comment on behalf of the construction profession.

Fast forwarding to the present and the exciting times ahead, our industry continues to apply maximum effort accommodating an ever changing global market and so to must the Institute to exceed the expectations of its membership, the construction industry and to the broader community.

With this in mind, the combined efforts of the many dedicated teams around Australia and Overseas are being applied to every aspect of the Institute that includes, but not limited to exploring new

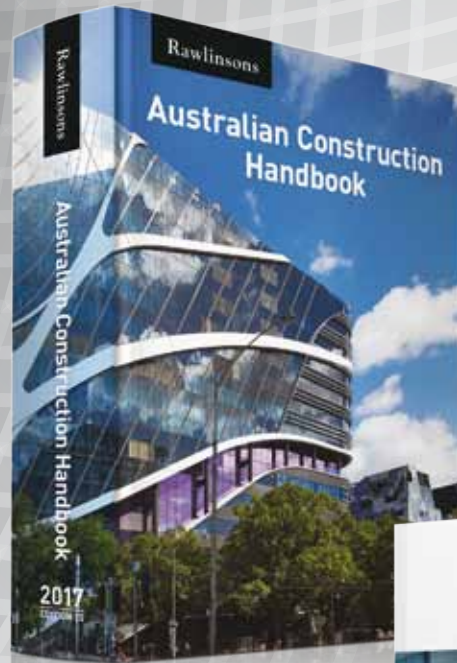
membership markets domestically and internationally, the development of new and the enhancement of internal and external educational programmes, simplification of the State and National awards platforms, industry collaboration, international forums, Marketing and Corporate Partnering programmes.

There is much for all of us to do and to echo the words of our Immediate Past National President, Mr Norman Faifer, FAIB, "Our Institute will continue to represent its members at forums across Australia, however to achieve our goals the Institute requires the proactive and continuous participation of all its members. We all have a role to play and remembering that our Institute will only be as strong as we make it."

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CEO's Column

One of the most consistent pieces of feedback I receive when I am on the road talking to members is more often than not about the AIB's Professional Excellence in Building Awards.

Again in 2017, the Awards will reflect the highest standards of building and construction management as well as research and development of building projects in Australia. They are unique as the only Australian awards that recognise the individuals' professional excellence in the building and construction process, as opposed to the project or completed structure. Each nomination is judged on its own merits and not against other entries within the same category.

Previous Award recipients have included building and associated professionals who have overcome challenges (some significant) to ensure the timely completion of projects on budget, those who have introduced practical application of industry influenced research as well as those who have protected the integrity of original structures and facades.

Over many years, building professionals have been rewarded and recognised for their works on a number of projects (including international sporting arenas through to complex residential developments and state of the art medical facilities)

This year as in previous, Award recipients will be announced at a number of gala events around the country between April and July with Chapter winners going through to the National Awards in September (to be held in Brisbane).

While both nominations and submissions have now closed, I trust that you will consider entering next year but at the very least, come along to the presentation evenings and support your colleagues in recognising some outstanding work.

For more information, please contact the AIB National Office on 02 6253 1100, email events@aib.org.au or visit our website.

Regards

Greg Hughes AIB CEO



'Constructing our World'. A Global forum launched in New Zealand

'Constructing our World' is the realisation of a vision seeded at a meeting in Sydney in August 2015. That meeting was the inaugural Tripartite talks between the New Zealand Institute of Building (NZIOB), the Australian Institute of Building (AIB), and the Singapore Institute of Building Limited (SIBL).

A topic of discussion was the potential for the three Institutes to collaborate on the holding of an Asia-Pacific Construction Conference.

The result is 'Constructing our World', which taps into a global groundswell that is rapidly changing the construction industry. Across the supply chain, construction is becoming increasingly technology rich and innovation focused. The 'Constructing our World' conference will bring speakers who are at the forefront of these changes to New Zealand to share how the next wave of construction 'best practice' could transform the sector and our built environment.

The NZIOB is proud to be hosting the first 'Constructing our World' in March 2017. With the second of this biennial event occurring in Australia, and the third in Singapore, 'Constructing our World' will not be back in New Zealand until 2023. The March 2017 event therefore marks an affordable opportunity for New Zealand construction practitioners to hear about global construction trends at a forum that features speakers from Australia, Hong Kong, Singapore, Sweden, South Africa, UK and the USA, in addition to leading New Zealand industry representatives.

Registrations are now open, visit www.constructingourworld.com for the detail on speakers, program, and registration, for this significant construction industry event.

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Apartment approvals booming in NSW but national approvals slowing down

The latest data from the Australian Bureau of Statistics shows a dramatic jump in NSW apartment approvals but a slowing down of home approvals across the rest

of Australia, says the Urban Taskforce.

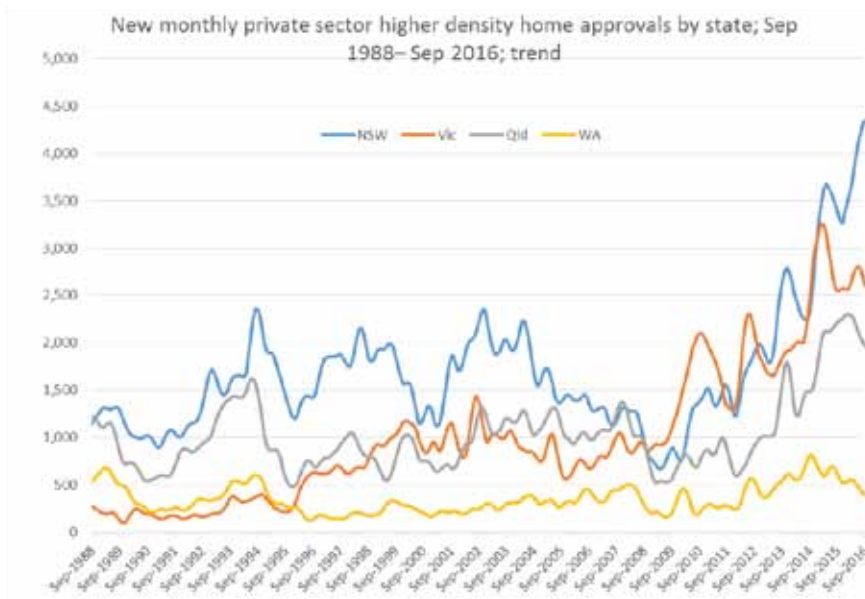
“NSW is leading the country with 6,693 home approvals in September based on trend figures with all other states slowing

down,” says Urban Taskforce CEO, Chris Johnson. “The NSW boom is propped up by the high density apartment market with 4,297 approvals in September 2016 compared to the low point in January 2012 of 1,222 approvals.”

“While the NSW figures are impressive the fact that the rest of Australia is slowing down could lead to a similar process in the Sydney market. The Urban Taskforce is concerned at media reports that the Greater Sydney Commission is considering a levy of 10% of new apartments to be given to Community Housing organisations as affordable homes. This could adversely affect the feasibility of many projects leading to a dramatic downturn in supply.”

“In the non-residential sector NSW is also booming with approvals valued around \$1.2 Billion for September 2016 matching a similar amount for Victoria.”

See graph on Higher Density based on ABS figures:



Hazelwood closure: The Latrobe has a big future if energy bias is removed

The announcement of the closure of the Hazelwood power station should provide the impetus for federal and state governments to reset the energy policy settings that have seen Australia lose its long-held competitive advantage in low cost electricity over the last decade.

If federal and state governments take a technology-neutral approach to Australia's energy needs, the Latrobe Valley still has a big future.

But if federal and state governments continue to pick winners, preferring one energy source over another, then the economic damage will not be limited to the Latrobe Valley.

The bottom line is simple – brown coal generation and sharply lower CO2 emissions are not mutually exclusive.

Brown coal should not be written off.

Deploying new technologies, brown coal can deliver low cost, reliable energy with up to 50 per cent reduction in CO2 emissions.

These are not blue sky technologies. New super-efficient brown coal plants are planned or already delivering low cost, base load energy around the world, including in Germany, Poland, the United States and Thailand.

If the federal and state governments close the door on new brown coal generation replacing aging plants then electricity prices will be higher than necessary and supply more unreliable than it should be.

Households and industrial users in Victoria and interstate (such as South Australia) will be affected and future investment

plans put at risk. Modelling conducted for the Victorian Government already shows that Victorian households can expect an annual price increase of up to \$100 with larger increases for small businesses.

And Australia will be wasting the talent of skills of thousands of workers from the Latrobe Valley as well as the rich resource that lies beneath it.

The last decade of energy policy interventions has yielded a grim dividend for energy intensive industries, especially the manufacturing sector.

A decade ago Australia had the lowest cost energy in the OECD. Now it has the 27th lowest. The consequences for energy intensive sectors have been as inevitable as they were predictable

FIRE SAFETY in **Australia's Warehouses and Commercial and Industrial Sheds**

A new fire safety report clarifies the compliance requirements for exposed insulation in the walls and ceilings of Australian warehouses and commercial or industrial sheds.

Australia's leading insulation manufacturer Kingspan Insulation recently engaged independent chartered professional fire safety engineer, Ignis Solutions, to evaluate whether exposed insulation is in fact considered a wall or ceiling lining, and if so, what fire performance requirements it needs to satisfy the National Construction Code's (NCC) Building Code of Australia (BCA).

The Ignis Solutions report forms Kingspan Insulation's new Fire Safety Compliance Guide: Wall and Ceiling Linings. The guide looks at what constitutes a wall or ceiling lining and confirms that insulation is considered a wall or ceiling lining if it is left exposed to the interior of the building.

The guide then highlights key advice areas including:

- NCC fire performance requirements for wall and ceiling linings;
- How fire hazard properties are classified and ratings achieved;
- The differences in test methods and relevant testing for different materials;
- What common insulation products need full scale fire testing (AS ISO 9705) to achieve a rating (Group Number); and
- What Group Number is required for Australian warehouses and commercial or industrial sheds.

It also considers why small scale testing is not acceptable for exposed insulation acting as wall and ceiling lining and what to do if a product supplier claims a Group Number based on smaller scale tests (AS/NZS 3837 or ISO 5660.1).

Kingspan Insulation Technical R & D and Accreditations Manager Keith Anderson says the report is essential reading for builders, roofing contractors, building surveyors and businesses engaged in the construction and finishing of warehouses and commercial or industrial sheds.

"It is also essential reading for all businesses looking to invest in new warehouses and commercial or industrial sheds. All property owners and businesses must understand the regulatory requirements for their premises and their compliance responsibilities as they could have significant implications on their insurance premiums."

Managing Director of Ignis Solutions, Benjamin Hughes-Brown, says it is critical that building professionals and businesses occupying or engaged in the construction of warehouses and commercial or industrial sheds around the country, clearly understand fire safety compliance requirements for exposed insulation that forms wall and ceiling linings, and take every step to fulfil their legal obligation.

"Exposed insulation in the walls and ceilings of warehouses and commercial or industrial sheds must be considered as wall and ceiling linings and fully meet every fire safety compliance requirement, says Benjamin."

Infrastructure Australia Delivers Reality Check on Value Capture

The release of 'Capturing Value: Advice on making value capture work in Australia' by Infrastructure Australia is a reality check on the ability of value capture to fund Australia's infrastructure gap.

"This is a considered report by Infrastructure Australia which rejects the idea that value capture is a magic pudding which can solve the country's infrastructure needs", said Ken Morrison, Chief Executive of the Property Council of Australia.

"The report finds the relationship between property values and infrastructure is often questionable, that value capture is likely to make only a modest contribution to project costs, there are big risks to poorly designed value capture and many existing property taxes already capture value for governments.

"Australia has a real infrastructure shortfall, but it is clear from this report that poorly constituted value capture carries real economic, social and political risks for governments, business and the community.

"Governments need to clearly differentiate between good value capture and bad value capture. Poorly designed value capture simply means ill-thought through property-based taxes that risk destroying much of the economic value generated by new infrastructure.

"This report is a reality check for governments who are promoting the concept of value capture without ruling out new property taxes.

"This report recognises that economic uplift is already captured across Australia through various land tax and rating systems.

Mr Morrison said the Property Council disagrees with the Report's finding on Tax Increment Financing and hypothecation models.

"The report's finding doesn't recognise that our cities are full of underutilised infrastructure or that land use and infrastructure planning are often not aligned.

"Tax increment financing creates a mechanism to bring the two together which then creates more tax revenue to fund the infrastructure asset. It is a tried-and-tested model that works overseas.

"It involves the use of bonds-based financing to seed the initial infrastructure designed to unlock new development, economic activity and create real value.

"Importantly, it then uses the existing tax base, rather than new ones, to repay the bond – and only captures value as it actually occurs."

Mr Morrison said he would add a word of caution to proposals to that seek to promote a 'stamp duty, land tax swap'.

"Stamp duty is a notoriously bad economic tax and we welcome IA adding their voice to calls to see it abolished – but the reality is that it is unlikely to be politically feasible to raise this amount of money from a broad-based land tax.

"We commissioned Deloitte to undertake research on this and to replace stamp duty with a broad based land tax would result in a family living in a \$1 million property paying \$100 a week in land tax".

"The ACT Government tax-swap experiment has already identified there is a limit to what people and businesses can and will pay when it comes to land tax.

Mr Morrison said the report by Infrastructure Australia was a significant contribution to the debate about how we fund Australia's future infrastructure needs.



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MAJOR CHANGES TO POST-INSTALLED AND CAST-IN FASTENINGS DESIGNED FOR USE **IN CONCRETE**



Australia has now introduced two very major changes on how post-installed fasteners (fixings) are designed and specified into concrete in buildings from 2016. Builders, sub-contractors, specifiers, suppliers, users, design engineers and installers need to be urgently aware of these new requirements and how they will directly affect them.

Why are these changes happening? Unfortunately, there have been numerous failures of fasteners in Australia and overseas, because of improper design, selection, and installation. New regulations have been implemented to improve the industry and prevent potentially catastrophic failures occurring in the future.

These changes will have a dramatic impact on the selection of post-installed fasteners, as these new regulations are mandatory, and a legal requirement for any future building work where post-installed fasteners are used!

The first change

The first change is the publication of the new design provisions for cast-in and post-installed fastenings into concrete for use in Australia. Published by Standards Australia in late 2015 titled **Technical Specification, SA TS 101:2015 “Design of post-installed and cast-in fastenings for use in concrete”**.

The organisation the Australian Engineered Fasteners and Anchor Council (AEFAC) initiated this Standard. AEFAC is an industry initiative seeking to enhance the specification, selection, design and installation of structural anchors and fasteners in the Australian construction industry because of concerns of poor selection and use of the fasteners. The new Standard was developed by an expert committee representing relevant organisations in the fastening industry.

AEFAC has an excellent website with considerable technical information which can be downloaded for free. <http://aefac.org.au>

This New Standard requires cast-in and all post-installed fasteners to be considered either as **safety-critical or non-critical fasteners**.

Safety-critical applications are defined as fastenings where failure may result in **collapse or partial collapse of the**

structure, endanger human life and/or cause considerable economic loss. Non-critical applications would be fasteners into concrete where failure is not likely to endanger human life or result in a substantial economic cost.

The determination of a **Safety-Critical Application** should be made by the design engineer or the person responsible for the installation if they have the necessary design skills or possibly your fastener supplier can help you in this decision. All safety-critical fasteners should be designed for the appropriate design loads as set out in the National Construction Code (NCC) 2016.

As an example, a post-installed fastener for a balustrade post into a concrete slab in a domestic dwelling needs to be designed in accordance with AS 1170 series of Standards (AS 1170.1). Another example would be fastener for the hangers of suspended ceilings in a commercial building in accordance with the Ceiling Standard. Both types of fasteners would be regarded as safety critical applications which would need to be designed to the appropriate Australian Standards. However, fixing of timber battens to a concrete floor for timber flooring is unlikely to be a safety critical application. If in doubt, a safety-critical application should be adopted.

The other important issue with the new Standard is that it requires that the concrete into which the post-installed fixing, is to be placed, **should be determined as either cracked or uncracked**. It is conservative to assume that the concrete is cracked and the selection of an uncracked condition should be justified by the designer via a stress analysis. An anchor that has been selected for installation in non-cracked concrete should be accompanied by a validation as to why cracking will not occur.

The definition of cracked concrete is concrete that is likely to experience cracking during its lifetime. It is therefore recommended that design for cracked concrete be used, because of the difficulty in determining if the concrete is uncracked during its lifetime, is near impossible and most concrete cracks for a variety of reasons. For further information on what constitutes cracked and uncracked concrete, refer to the website for further discussion on cracked and uncracked concrete. [Http://aefac.org.au/documents/AEFAC-TN06-concrete.pdf](http://aefac.org.au/documents/AEFAC-TN06-concrete.pdf)

Based on the criteria of **safety critical fasteners**, the suppliers of the post-installed fasteners must supply



Balustrade post-installed fixing, Sir William Goodman Bridge

fasteners which have been tested to these conditions with the appropriate test certificates and design capacities for cracked concrete. Post-installed fasteners in cracked concrete are tested in accordance with European practices (ETA). Not all available fasteners will be suitable for cracked concrete or have test data. Particularly thin wall and cheaper style of fixing that most fasteners suppliers have are generally not suitable, and some current chemical anchors will not be suitable as they have not been tested for cracked concrete. Also, the load capacities of post-installed fasteners into cracked concrete are significantly less than those for previously used for uncracked concrete.

Most manufacturers of post-installed fasteners have a limited range post-installed fasteners that can supply and comply with these requirements. However, those buying post-installed fasteners have a legal obligation to advise their supplier of these requirements and many post-installed fasteners used in the past will no longer be suitable for **safety-critical applications in cracked concrete**.

Builders, you also have an obligation to ask the question of your sub-contractors, are these required safety-critical fasteners and to educate them on their statutory requirements and the need for correct design.

The second change

The second significant change which has occurred is the publication of the National Construction Code (NCC) 2016 which was adopted by all States and Territories on the 1 May 2016.

There are three volumes which cover building construction in Australia. Volume 1 contains the requirements for multi-residential, commercial, industrial and public buildings and structures and volume 2 contains the requirements for residential and non-habitable buildings and structures. Volume 3 covers plumbing and drainage.

Within volumes 1 and 2 of the NCC, there is a **statutory requirement that all Post-installed and cast-in fastenings shall be determined according to: SA TS 101**. (Volume 1-B1.4, (b) (iii) Post-installed and cast-in fastenings: SA TS 101 and Volume 2-3.11.6 (f) (iii)).

Because the clauses are in the structural sections of the NCC volume does not mean that they do not apply for all sections of the building.

If the design of the building is based on the deemed to comply methods, which most buildings are, then all post-installed fasteners must comply with SA TS 101.

These requirements are mandatory and a legal obligation.

This means post-installed fasteners must be designed by a suitably qualified and experienced engineer for the correct design loads (dead, live, wind and EQ as applicable) as set out in the Standards to comply with the statutory requirements of the NCC.

Therefore, the designer of post-installed fasteners will need to establish the following.

- Determine whether the post-installed fastener is safety-critical or not.

- If it is safety critical fastening to choose a suitable fastener appropriate to the location which may be for example an expansion fastener, undercut fasteners or concrete screw fasteners or chemical fasteners.

- For safety-critical fastener, the fastener has to be designed for cracked concrete (or un-cracked concrete if justified) and a suitable approved fastener provided by the fastener supplier and designed by your engineer for the correct loads. You cannot assume because the fixing has ETA approval it is adequate, **as it needs to be designed**. No longer can post-installed fasteners be guessed, and they need to be designed for the specified loads. This will require specific engineering input or possibly design advice from your supplier or others as appropriate if they can provide that technical advice.

- Determine the durability of the post-installed fasteners for the exposure location. Zinc plated post-installed fasteners should not be used in external applications and galvanised finishes should be a minimum requirement. Also, be aware of dissimilar metals such as galvanised and stainless steel. It is always preferable to have the same grade of material for the base material and the fastener if possible to avoid this issue. For example, grade 316 fasteners could be used with stainless steel grade 316 material to be fixed.

- Most types of pre-installed fasteners are sensitive to installation practice, and you should consider **AEFAC Installer Training for the installers for critical fasteners. The importance of following the manufacturer installation procedures is vital**. The installation requirements vary across products and from manufacturer to manufacturer who have technical data on installation. Many suppliers can provide on-site inspections and for heavily loaded fasteners possibly test them if required. The training of installers is frequently overlooked which can cause gross errors during installation that in turn could have catastrophic consequences.

In the UK, SCOSS (Standard Committee on Structural Safety) <http://www.structural-safety.org/> has also been concerned for some time at the use of structural fasteners where these so called 'minor' items have not received the design attention they deserve, given their safety-critical nature. Fixing problems make up 10% of all reports to CROSS and of these many have related to post-drilled fixings. <http://www.structural-safety.org/media/358371/sc-14-03-alert-on-tension-systems-and-construction-fixings-final-3->

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Builders and sub-contractors, you can no longer guess the post-installed fastener and buy the cheapest one possible, even with ETA approval. They will not comply with the statutory requirements unless they are designed and specified for your project by your engineer!

John Woodside

John has nearly 50 years' experience in the building industry both in Australia and overseas and is widely experienced in many aspects of buildings and construction including concrete and precast concrete and the design of cast in and post-installed fasteners.

In 2006, he was awarded the prestigious John Connell Gold Medal by the Structural College of Engineers Australia in for his outstanding contribution to structural engineering and eminence in consulting engineering in Australia and overseas as a highly respected Principal of Connell Wagner.

John was elected an Honorary Member of the Concrete Institute of Australia (CIA) in 2005 for his services to concrete.

He assisted the National Precast Concrete Association of Australia in the preparation of the Precast Concrete Handbook, published in 2009 (he was one of the original 18 authors).

He has also assisted the Cement Concrete Aggregate Australia in reviewing and rewriting some of their technical manuals including the Guide to Residential Floors and Guide to Long-Span Concrete Floors. He assisted in rewriting the Reinforced Concrete Design Handbook in 2010-2011. He also assisted in the writing of the Guide to the Design of Reinforced Concrete for Seismic Loads by the SRIA in 2015.

He continues to provide specialist advice to the precast concrete industry and construction industry in structural matters from time to time.

march-2014.pdf

Most fastener suppliers in Australia have a range of fasteners that will now comply, and for special fasteners you may need to talk to wholesalers who may have better access to a wider range of fasteners from specialist Europe manufacturers with the correct ETA approvals.

As an example, John Woodside, project managed the restoration of a heritage concrete bridge designed by the famous engineer Sir John Monash and safety critical fasteners were required for the posts for the handrails posts. ICCONS who area premier wholesaler of ETA approved products was able to provide the contractor with specialist fasteners from globally recognised manufacturers overseas, as shown below.

Another example of the use of approved fasteners is the soon-to-be-completed new Royal Adelaide Hospital where the structural engineers, W&G/KBR required all fasteners for all fixings for all disciplines including building services and architectural components had to be suitable for cracked concrete under

all design loads including EQ. This revolutionised the use of fasteners for that project from all the suppliers.

As part of your risk management, you need to change your choice and the design of post-installed fasteners immediately. Otherwise, you could expose yourself to legal action should failures occur for any building work commenced after the 1 May 2016, because of the use of incorrect post-installed fasteners.

Also, unfortunately, your new post-installed fasteners will also probably be more expensive than what you may have been using, but that is the price you will have to do pay to comply with your statutory and legal requirements. However, remember that the cost of such fasteners is a very small part of the overall cost of the element being fixed.

Now that the new fastener standard is fully implemented, it is going to change the fastening and fixing industry forever and your approach to the use of post-installed fasteners.

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Are your showers ticking time bombs?

Despite builders best efforts, leaking showers are consistently listed in the BSA's top ten defects.

Sadly, sometimes this is due to sub-standard workmanship, but most of the time it is the design of the shower itself which is creating the potential for disaster.

Most contractors are at a complete loss as to why, but detailed testing has shown how, by the action of expansion and contraction, water is "pumped" along glue cavities to escape the shower enclosure, no matter how well it is water-proofed.

The best way to prevent the problem is to seal the screen directly to the membrane, and NOT to the tiles.

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- Positive connection between screen and membrane
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- 20 different shapes and sizes
- Minimum change for maximum benefits



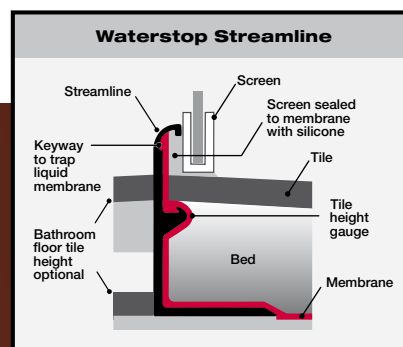
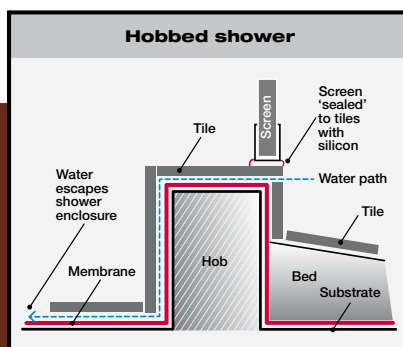
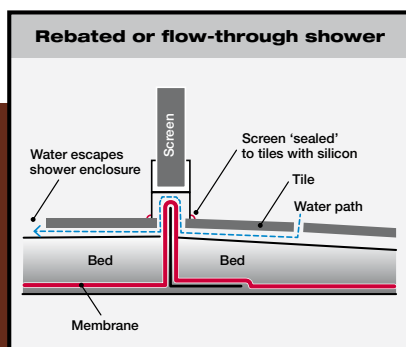
My business has expanded rapidly since we started using the Waterstop Streamline hob and I now have tilers recommending the Waterstop Streamline system - and me - to other builders. Everyone that uses it loves it.

Mr Fred Meddings, Managing Director
Watertight Australia (Water-proofers)

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Mr Glen Whitehead, Managing Director
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Gyprock launches Rigitone premium perforated ceiling board that delivers a seamless finish

CSR Gyprock, the Australian plasterboard market leader, has just launched its new, seamless Rigitone perforated plasterboard with innovative Activ'Air technology and a unique jointing system that creates ceilings with a continuous finish, high levels of acoustic performance and improved indoor air quality.

Always on the forefront of innovation, Gyprock has partnered with leading manufacturers throughout the world to deliver the best technologies and products to the Australian building industry. As part of the International Alliance program, Gyprock along with worldwide plasterboard leader, Saint Gobain, continues to evolve its perforated plasterboard range with the launch of Rigitone.

Rigitone perforated plasterboard is a superior and modern acoustic solution that delivers a monolithic design due to its edge to edge pattern layouts and revolutionary jointing method. The all-

in-one installation solution includes the use of a specialised primer, filler and installation tools.

Rigitone is specially designed to be screw fixed to suspended grid. With the aim to improve installation speed, all four edges of Rigitone boards are square cut and pre-primed, with Rigitone Primer used only to prepare cut edges for jointing. Pattern Spacers are available to ensure boards are fixed with the exact gap required for jointing, which is achieved using ready-mixed Rigitone Filler sausages. Dispensed with the Accessory Kit, Rigitone Filler is applied to the gap between sheets using the unique applicator nozzle, delivering a strong joint without reinforcing tape or multiple coats. Integrating lighting, ventilation systems and other products such as audio speakers is straightforward and a continuous seamless finish is easy to achieve.

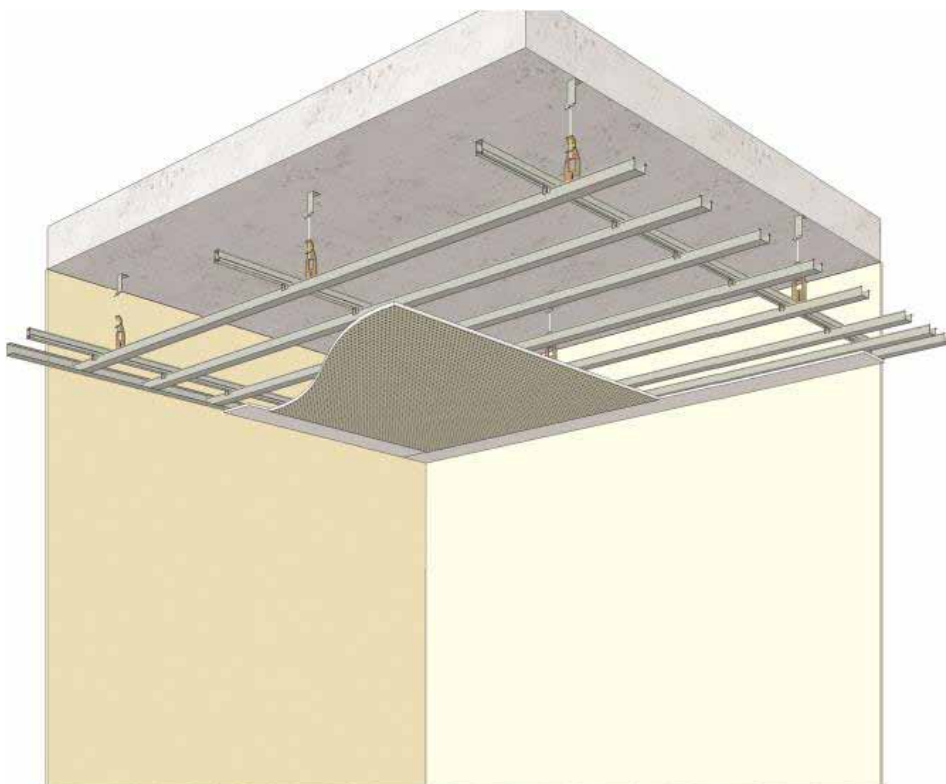
The Rigitone range features four contemporary perforation patterns,



Rigitone Matrix 8mm Round, Rigitone Matrix 12mm Square, Rigitone Astral and Rigitone Galaxy, each with different percentages of open area to meet most acoustic application requirements. Due to the variety of perforation sizes and patterns, board dimensions vary slightly but are nominally 1200mm x 2000mm x 12.5mm.

A key feature of the Rigitone range is Activ'Air, a patented technology that converts formaldehyde into non-harmful inert compounds that are permanently locked in the board and cannot be released back into the air. This can reduce the concentration of formaldehyde with an environment by up to 60% when installed in ceilings. Rigitone plasterboard will have an enduring impact on air quality and will improve the environment for people working and living in the space.

Rigitone delivers the perfect balance of aesthetic and acoustic performance. The boards' perforations and highly effective acoustic fabric lining dramatically improves the acoustic performance of the board, which reduces echo and noise reverberation. The fabric also provides additional benefits including the prevention of dust from ceiling cavities coming down in the room, concealment of ceiling framework and contribution to better fire protection compared to a plasterboard without fabric backing.



Rigitone key features and benefits:

- 4 designer perforation patterns, delivering a seamless aesthetics once installed
- 4 pre-primed edges to speed up sheet prep
- Pattern Spacer to ensure accurate board positioning
- Revolutionary jointing method made easy with specialised tools
- Specific accessories to support installation; Rigitone Primer, Filler, Filler Accessory Kit and Pattern Spacer
- Activ'Air technology for improved indoor air quality
- Black acoustic fabric backing as standard

"Gyprock is well known for setting industry benchmarks and Rigitone is the next major product advancement for

us. Our goal is to offer design flexibility with a sophisticated installation system. From that perspective, Rigitone is dream product," says Najwa Khoury, General Manager Marketing, Gyprock.

Rigitone offers a variety of finishes to offer high performance sound absorption and is suitable for ceiling applications including foyers of public buildings, restaurants and hotels, retail and shopping centres, leisure spaces and commercial office buildings.

Rigitone is an extension of Gyprock's perforated plasterboard range which also includes Gyprock Gyptone and Gyprock Standard 6mm Round.

Rigitone is available for special order nationally through all CSR Gyprock channels. For more information, visit gyprock.com.au or call 1300 306 556.



McKell Institute research confirms Federal Government's building code will compromise safety; apprentice numbers

New research by independent think tank The McKell Institute has reaffirmed union fears about the impact of the Federal Government's proposed building code, finding it is likely to compromise workplace safety and reduce apprentice numbers, while also failing to achieve its stated objectives and potentially breaching the Legislation Act.

The Electrical Trades Union said the analysis also warned that the retrospective nature of the building code and the banning of otherwise legal clauses were likely to increase the number of industrial disputes.

"This research is a timely reminder of the economic danger posed by zealots pursuing their outdated industrial agendas," ETU national secretary Allen Hicks said.

"The McKell Institute report has revealed the building code for exactly what it is — an ideologically motivated attempt to strip away the rights of working people and small business owners.

"The Liberal party learned in 2007 that they can't attack working Australians head-on, so this time they are trying to disguise industrial relations bastardry as a procurement policy. It's not going to work."

The independent research found that the building code would result in a decrease in the number of apprentices, an increase in the number of 457 visa workers, was unduly harsh on both business owners and employees, and would favour the big end of town at the expense of small business growth.

Despite not yet being in force, the McKell Institute also found that confusion and uncertainty created by the onerous requirements of the building code was already creating significant roadblocks for employers in the construction and related sectors.

"Contractors and employees are now hamstrung when trying to negotiate decent agreements," Mr Hicks said.

"This government is using taxpayer's money to blackmail and coerce building industry participants to conform to their industrial relations ideology.

"The Turnbull Government is so detached from the reality of the construction business that they're willing to trash decent companies just to score political points.

"Meanwhile, our members and their employers, who are just trying to make a living, are caught in the crossfire."

The Building Code (2014) is part of a package of legislation whose passage is increasingly uncertain after the resignation of failed construction business owner Bob Day. Mr Day left parliament under a cloud after it was revealed that he had lobbied for taxpayer money to be funnelled to a training organisation that he directed, and that he may have been ineligible for election due to his financial relationships with a government department.

"The passage of this redundant and damaging building code is far from assured," Mr Hicks said.

MORE HOMES AND JOBS WITH RECORD APPROVALS

Thousands of new homes, workplaces and shops will be built across NSW following a record-breaking \$15 billion worth of development being approved in the last financial year.

A total of 370 applications worth \$15.047 billion were approved across NSW. This surpassed the previous record of 285 applications worth \$10.035 billion in 2014-15.

Approved developments include the \$596 million Parramatta Gateway development in Western Sydney and the \$281 million Kirrawee South Village development in Sydney's south.

Planning Minister Rob Stokes said the approvals had a dollar value more than \$5 billion higher than projects approved last financial year, and more than double that for 2013-14.

"These approvals will provide an important boost to the economy while also providing new homes and jobs for local communities," Mr Stokes said.

"It's vital the planning system provides certainty and clarity to the community, and planning panels help provide timely decisions while ensuring proposals are properly assessed."

The approvals were made by the six Joint Regional Planning Panels across NSW. The panels comprise five members including two appointed by the Planning Minister and two appointed by the relevant local council, with an independent chair chosen in consultation with Local Government NSW.

About 97 per cent of planning panel determinations across the state have been in line with recommendations from local councils.

Later this year, six Sydney Planning Panels, under the Greater Sydney Commission, will replace the Sydney East and Sydney West Panels. The Sydney Planning Panels will operate across each district in Greater Sydney, and will be chaired by the relevant District Commissioner.

New Retail Centre to Boost Investment in Western Sydney by \$100 Million

Frasers Property Australia (Frasers) has secured the rights to develop the new Eastern Creek Retail Centre in Western Sydney Parklands which will create more than 1000 local jobs and 500 construction jobs as well as generate more than \$100 million of investment in Western Sydney, NSW Environment and Heritage Minister Mark Speakman announced recently.

"The new retail centre will create a long term income stream for Western Sydney Parklands Trust, that will allow the Trust to manage the remainder of the Parklands and deliver significant benefits to the Western Sydney community," Mr Speakman said.

Western Sydney Parklands Trust's Plan of Management sets aside 2% of the Parklands for business hubs to fund the remaining 98% of the Parklands.

"By developing vacant land with low recreational and ecological value, Western

Sydney Parklands Trust is generating funds to develop and manage the adjacent Bungaribee Park, expand the 1,000 hectare biodiversity corridor and create more cycling and walking tracks for the community to enjoy."

The exclusive development rights were awarded to Frasers through a competitive tender process.

The 15.7 hectare retail centre is proposed to be built in four stages over a five year period on the Great Western Highway between Rooty Hill Road South and the M7 motorway. Construction is likely to begin early in 2017.

The new development is consistent with the provisions within the State Environmental Planning Policy (Western Sydney Parklands) 2009 and the adopted Plan of Management.

New hotline a one-stop-shop for asbestos advice

The NSW Heads of Asbestos Coordination Authorities (HACA) recently launched a new hotline number to provide free advice and guidance on asbestos-related issues.

HACA Chair Peter Dunphy said the new number 1800 Asbestos provides the NSW Community with a central point of contact for making enquiries about asbestos.

"Calls to 1800 Asbestos (1800 272 378) will be answered by the SafeWork NSW Customer Contact Centre who regularly manage general asbestos enquiries," Mr Dunphy said.

"The hotline will be particularly useful to homeowners and renovators including advice on what they should look out for before renovating an older style home, built prior to 1987.

"Callers will also be referred to an extensive range of free educational resources on asbestos such as information on managing or removing asbestos in the home or workplace."

The hotline will also refer the public to the correct government agency or local

Council for further advice and assistance where appropriate.

Mr Dunphy said between July 2015 and June 2016 the SafeWork Customer Contact Centre handled more than 4,000 asbestos enquiries.

"Asbestos is a prevalent issue in our community and the new hotline will act as a one-stop-shop for advice and assistance on asbestos," Mr Dunphy said.

HACA works to improve the management, monitoring and response to asbestos issues in NSW by developing coordinated prevention programs and developed the NSW state-wide plan for asbestos, as well as a model asbestos policy for local councils.

Asbestos licence holders still must notify SafeWork NSW before licensed asbestos removal work is commenced on the Asbestos and Demolition Hotline, 1800 672 718.

1800 Asbestos will complement other asbestos advisory resources such as asbestosawareness.com.au and safework.nsw.gov.au

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New copper mine construction commenced - paving the way for **MORE THAN 1000 JOBS**

Construction has commenced at OZ Minerals' Carrapateena copper mine, paving the way for almost \$1 billion in potential investment in the State's North and more than 1000 jobs.

Premier Jay Weatherill recently officially opened a planned 5.5 kilometre underground tunnel to access and mine one of Australia's largest undeveloped copper deposits, located 160 kilometres north of Port Augusta.

If the detailed exploration is successful and the project is progressed it is expected to generate more than 1000 construction to production jobs in the next few years; with an anticipated mine life of over 20 years.

Background

The \$65 million contract to build the exploration tunnel and associated infrastructure was awarded to PYBAR Mining Services.

The Carrapateena iron-oxide copper-gold deposit was discovered in 2005 with the assistance of a State Government Plan for Accelerating Exploration (PACE) collaborative drilling grant.

In January 2015, the State Government entered into a \$10 million agreement for OZ Minerals to relocate its head office to South Australia, and enter into a research partnership aimed at unlocking deeply covered mineral deposits.

The State Government has also co-invested \$18 million with OZ Minerals to support research into a demonstration trial of a copper concentrate treatment processing plant.

The South Australian Copper

Strategy, formulated with input from the government, industry, scientific organisations and services suppliers, seeks to triple South Australia's output of copper to one million tonnes by 2030.

Quotes attributable to Premier Jay Weatherill

Carrapateena is a world-class deposit that has the potential to trigger almost \$1 billion in investment and create more than 1000 jobs.

Copper built this State and discoveries like this mean this commodity, which we have in abundance in South Australia, can continue to contribute enormously to

our economy.

Our experts believe there are other large deposits out there waiting to be discovered, which is why we have provided a further \$20 million in funding to the PACE program to expand the search for copper.

This initial construction will benefit communities in the north of the state, through new jobs and opportunities for supply chain businesses.

And if the project is progressed, the economic benefits to the upper Spencer Gulf region and the state as a whole will be enormous.



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\$50 Trillion in New Investment Needed to Match Global Energy Demand in Next 20 Years

by RIO TINTO DIRECTOR

Global energy markets will need around \$50 trillion in new investment to fund expected growth in energy demand over the next two decades, according to one of Australia's pre-eminent business and industry experts.

Such investment would be needed to fund an energy market expected to grow by 40% through until 2035 – with that higher consumption continuing to rely in part on baseload fossil fuels.

The forward energy estimates also come with a warning that the infrastructure underpinning electricity grids will have to fundamentally change.

Central planks to this “fundamental shift” will be developing new renewable energy storage technologies and embracing cutting-edge technologies “currently coming down the pipelines” – much of the latter being led by Australia.

The comments were made on Friday, 28 October in a speech in Adelaide by Rio Tinto non-Executive Director and former CSIRO Chief Executive, Dr Megan Clark AC, delivering the Australasian Institute of Mining and Metallurgy's (AusIMM) 42nd Essington Lewis Memorial Lecture.

In a speech titled **“Science and the mining and resources industry – partners and helpers in building an exciting, equal and sustainable world,”** Dr Clark said global energy sectors were poised for a revolution driven by the strong strategic forces of supply/demand, technological development, social expectations and geopolitics.

“The current global demand picture for

energy is strong,” Dr Clark said.

“Primary energy demand accounts for 7% of global GDP. Emerging markets are expected to show growth in demand for coal and for oil, the latter being driven by rising incomes, urbanisation and more cars,” she said.

“The world energy demand till 2035 is set to grow 40% and needs around \$50 trillion in energy investments to meet this demand. How this investment is made will write the script of our energy future.

“Technology has also rapidly progressed where genetics, robots and artificial intelligence are all happening now in the mining industry – and Australia is leading the way in many areas.

“Renewables now account for around 50% of all new power generation, and last year saw a record of 121GW of combined solar and wind power capacity installed. Wind and solar are now competitive without subsidies.”

Dr Clark said that against this backdrop, the geopolitics of oil remained complex, as Saudi Arabia and Iran pumped out record production, and the US became more sustainable through the use of oil sands and oil shale.



"There is considerable debate on whether we will see an upsurge in oil prices or a long run of low prices and what I am watching is whether the costs of oil production continue to fall, particularly the impact of new drilling technology on costs," she said.

"One of the key signposts to watch will be whether electric vehicles remain niche or whether they will have real impact and in this regard, all eyes will be on electric vehicle penetration in China. Its new five year plan targets a 40-45% reduction in carbon-based energy by 2020 - underpinned by aggressive new electric vehicle targets."

Dr Clark said that in this mix of energy,

transport matters. For example, in the US 28% of all energy used there is "to move people and things".

While new electric car and battery storage are dominating much of the current energy debate, Dr Clark warned that investment is required to ensure stability of Australia's current electricity systems.

"Electricity systems haven't changed much since Edison's first power station in 1882 and Australia's system continues to largely use fossil fuels, generating power centrally when the customer needs it," Dr Clark said.

"It's a system comparable to sitting around a radio listening to the broadcast, versus the internet. The future will see a very different electricity system," she said.

"It is a complex set of forces. The outcome is energy resources and electricity markets will be pulled and pushed by these opposing forces for the next 15-25 years before a new future arises.

"One of those forces is climate change and its impact.....and this at a time when the world has already experienced one degree of global warming and every decade, we are breaking the climate records of the past.

"In June this year, we passed

400ppm CO2 in the atmosphere at Cape Grim (the most north-western point of Tasmania), much higher than any level seen there in the past 400,000 years."

Dr Clark said the decision by the UN Conference on climate change in Paris in December last year, setting a 2.0°C earth warming cut-off target, was welcome but would be a challenge to deliver.

"It will need the proportion of the world's electric vehicles to increase from virtually zero per cent of passenger cars now to a quarter of passenger cars by 2030 - a target requiring significant change in consumer behaviour and buying patterns," she said.

"Battery storage costs improved 20% last year - but we still need a major breakthrough in large-scale storage. "

Dr Clark told AusIMM members and guests that the attention received by the release of the Tesla Model S battery - equivalent to 7000 lithium-ion computer batteries put together - was indicative of pent-up demand for newly developed functional large-scale batteries for renewable energy storage.

"But we are decades behind on batteries for renewable energy storage as it takes at least a decade to prove a battery is safe before it can be commercialised," Dr Clark said.

She noted Samsung's



current anguish with its Galaxy 7 telephone batteries as an example of the lag time to deliver on new renewable battery successes.

Dr Clark said it was how the resources and energy industries worked in the future with their local and national communities that would be pivotal for not their “right to operate” nor their “licence to operate” but their “privilege to operate”.

“Australia’s mining industry has to ask itself what it needs to do to be partners and helpers in building a more equal and sustainable world. Among that will be the need for more collaboration the big problems like climate, water and supply chains that require global collaboration,” Dr Clark said.

“In places like Australia and the Gobi Desert in Mongolia, we know water is precious, which is why the industry supports the work by the Bureau of Meteorology and the CSIRO who worked together to relook at the structure of the Great Artesian Basin for the first time in 30 years.

“These basin-scale projects provide an important context for our miners for local water use.

“The mining industry must also continue to tackle water recycling with Rio’s Oyo Tolgoi copper-gold mine in Mongolia a good example, reaching a benchmark of 84% recycled water.”

About Essington Lewis

The Essington Lewis Lecture is named in honour of one of the founding fathers of the Australian resources sector, and a former Chief Executive and Chairman of BHP, who worked by the company for 48 years.

Essington Lewis was instrumental in the development of BHP. His role in co-ordinating Australian industry’s response to the demands of the Second World War effort is less recognised, but no less important.

The contribution of this unsung South Australian to Australia’s national development is commemorated by the annual presentation of the lecture named in his honour.

The annual Essington Lewis Memorial Lecture provides a forum for informed and constructive debate on wide-ranging and topical issues.

Previous speakers include Australian Nuclear Science and Technology Organisation former Chairman, Dr Ziggy Switkowski; prominent Australian geologist and lecturer, Professor Ian Plimer; former Foreign Affairs Minister, Alexander Downer, AC, and former Normandy Mining and Rio Tinto Australia boss and industry stalwart, Dr Ian Gould AM.

About Dr Megan Clark

Dr Clark was the first female Chief Executive of the CSIRO from 2009 until 2014. Prior to that appointment, she held various mineral exploration, mine geology and strategic positions with the former Western Mining Corporation, was a director at NM Rothschild & Sons (Australia) and was Vice President with BHP Billiton from 2003 to 2008.

She holds a PhD in economic geology from Queen’s University, Canada, is a Fellow of the AusIMM and was awarded the Highest Honours Institute Medal in 2013. In 2014, she was appointed a Companion of the Order of Australia - the same year she joined Rio Tinto as a Non-Executive Director.



Dr Megan Clark

The 42nd Essington Lewis Memorial Lecture

Science and the mining and resources industry – partners and helpers in building an exciting, equal and sustainable world.

Dr Megan Clark AC

The Australian Institute of Mining and Metallurgy
28 October 2016, UniSA City West Campus, Allan Scott Auditorium, Adelaide

I would like to acknowledge the traditional owners of the land on which we meet, the Kaura people and I respect their spiritual relationship with their Country. I also acknowledge the Kaura people as the traditional custodians of the Adelaide region and that their cultural and heritage beliefs are still as important to the living Kaurana people today.

I would like to acknowledge and thank the AUSIMM for sponsoring this event. A special thank you to Janine Herzig, a Board member of the AUSIMM who provided wonderful support in the lead-up to this presentation.

Distinguished guests, ladies and gentlemen.

INTRODUCTION

It is a privilege to be honouring Essington Lewis today. Essington Lewis was a nation builder. He joined BHP 102 years ago, rising to managing director in 1926 and Chairman between 1950 and 1961. He laid the foundations for the BHP Billiton we see today - the largest minerals resources company in the world. Outside BHP, he coordinated Australian industry’s response to the demands of World War II, establishing aircraft and munitions support to the nation. He supported the start of the car industry in Australia.

He was a remarkable man and a legend in the mining industry. I suspect that if he were he alive today he would be getting his hands dirty building submarines!

A few weeks ago, I was in Mongolia visiting the underground development of the Oyu Tolgoi copper- gold mine that will help build the nation of Mongolia for generations.

It was fascinating to use virtual reality to take me into an underground setting to complete my induction training.

It was exciting to learn of the mine operating system, which rivals the best in the manufacturing industry, and guides decisions on how people and equipment are deployed to maximise cash flow. A far cry from the shift boss protecting his turf.

Jessica, the open pit manager described the timing of bringing autonomous mining equipment to the bottom of the pit as if it was business as usual.

It is indeed a privilege to operate in this young democracy. I was reminded by



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government leaders of the importance of training and support of the community to maintain that privilege.

I met with a camel herder and his wife and drank fermented camel's milk. There were two things they were happy about. They had 50 new baby camels and their son and daughter were at university studying engineering and medicine as part of the agreement with the mine to support university education for their children.

Each of the young Mongolian leaders at the mine described their journey. Many of them had trained in New York, California, Beijing Moscow, Brisbane, Canberra and here in Adelaide.

I had a special reason to be pleased to go underground. Mongolia had just changed the law to allow women underground; a change supported by Rio Tinto. I was so proud to stand underground alongside my fellow, women directors and executives and with the young women of the Oyu Tolgoi mine and reflect that Western Mining Corporation had supported similar changes to the WA Mines Act some 35 years ago, that allowed me to legally work underground.

This visit reminded me that mining continues to bring fascinating and exciting technology to the world. It also reminded me that society expects much more from our industry than just returns on our investor's savings.

Tonight, I wanted to take a good hard look at what science and industry must do, if we are both to be partners and helpers in building the kind of world that we want to inherit in the future – a fascinating, exciting, equal and sustainable world.

IT IS A FASCINATING, EXCITING AND CONNECTED WORLD. MINING IS PLAYING AN IMPORTANT PART IN BRINGING US THAT FUTURE.

Ever since I started as a geologist I got hooked on the thrill of discovery. I love translating that discovery into real wealth for this nation; into things that can shift billions of lives or maybe just a few.

Most of my career I have had the job of predicting where technology is heading and investing in that future. It is a fascinating, exciting and connected world. Mining is playing its part in bringing us that future.

The cost of sequencing the genome keeps falling faster than the growth in computing power. Now we are not only understanding our own genetics but that

of the millions of microbes that live within and on us. We are starting to unravel the wicked cleverness of viruses, bacteria and archaea.

We are now using tools to precisely edit, delete, add and replace sections of genetic material and do this consistently. This is allowing us to develop new therapies in the laboratory to help patients with diseases like cystic fibrosis [1]. It is also relevant for mining because mining uses bacteria and archaea for bio-leaching gold and copper. Researchers are already exploring ways of using these new gene-editing tools to develop new bio-processing techniques [2].

Another area that is heralding the future is astronomy. In astronomy, the new Square Kilometre Array Pathfinder project in Western Australia will listen to the faint whispers of radio waves coming from our universe. It will detect galaxies even before they started to shine light. We'll be able to hear the radio signals they created as they tore at the fabric of space and the gas around them.

Now you are asking, how is this relevant to our industry. Well the Square Kilometre Array with its broadband communications link and super computer have attracted IBM and CISCO's interest.

IBM, CISCO and Woodside are working on a project to use IBM's new WATSON computer, remember the one that won Jeopardy, to create an expert and self-learning system to solve problems on the off-shore rigs.

First WATSON was loaded with 30 years of Woodside's field engineering reports. Then it was trained to answer questions and spot issues that relate to this knowledge. This will bring all the expert knowledge to the fingertips of a young engineer grappling with an issue on the rig.

These data-rich areas of genetics and astronomy are heralding the way we will collect, use and analyse data. We see this influence in the acceleration of developments in robotics, data processing and communications.

I was recently in the Pilbara. All the control rooms for every part of the operation - from the rail to the processing, to the port are controlled out of the Rio Tinto Operations Centre in Perth. It is extraordinary.

To see the driver-less trucks in action was like a dream come true. I could have watched all afternoon. At one moment two trucks arrived at the same time to

be loaded. Now I know how this would have played out in the open pit in which I worked, and it would not have been pretty.

I watched as the trucks sent a polite message off to the software system to ask – "Which one of us has priority?". The answer came back and one truck gently backed up to let the other load first. Then without the slightest hint of road rage and no rear-ending they followed each other up the ramp. Magic.

The team is now working on the world's first autonomous trains which could be the largest robots on earth.

Tim Fawcett of CISCO informed me recently that the Australian mining industry's push to move data to control centres, thousands of miles away, has been behind Australia becoming a leader in the global market for cloud computing [3].

So, I have no doubt it will be a fascinating and exciting future and the mining industry will lead in the development and use of technology.

ENERGY SECTOR IN FLUX

Technology is also playing a part in changing the energy sector but it is not just technology that is bringing change. The energy sector is poised for a revolution driven by the strong strategic forces of demand, technology development, social expectations and geopolitics.

If we look at demand, we see a strong picture. Primary energy demand accounts for 7% of global GDP. The world energy demand till 2035 is set to grow 40% and needs around \$50 trillion in energy investments to meet this demand⁴. How this investment is made will write the script of our energy future.

Emerging markets will continue to show growth in demand for oil and coal driven by rising incomes, urbanization and more cars. A low oil price generally boosts car sales because it makes personal driving more affordable.

Against this backdrop, climate change and air quality [5] are putting our fossil fuel use in the spotlight. Today's share of fossil fuels in the global energy mix is the same as it was 25 years ago, leaving much of the world dependent on energy imports and associated geopolitical risks.

The world has already experienced one degree of global warming and every decade we are breaking the records of

The big win-win.

“

It was late on Friday afternoon when we found out we'd won a large tender. Of course, once all the high-fives stopped, reality set in.

We needed to staff up, fast. We called up some of the best contract engineers in the business to see who was available. Within a few days we had ten people about to start and nowhere for them to work.

But I was all over it.

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the past. In June, this year, we passed 400ppm CO₂ in the atmosphere at Cape Grim in Tasmania, which is much higher than any level seen in the last 400,000 years [6].

The human health risks of air pollution in places like Beijing cannot be ignored. The UN Conference on climate change in Paris in December last year, COP21, was remarkable not for the targets it set but because the world agreed on something, and agreed to act.

Sticking to the 2.0°C target, agreed at COP21, will be very hard. For example, it would need the proportion of electric vehicles to increase from virtually zero per cent of passenger cars now to a quarter of passenger cars by 2030. This would be a significant change in consumer behaviour patterns.

So, we face very significant challenges.

The technology is progressing. The cost of renewables is now competitive, without subsidies, for the first time.

Battery storage costs improved 20% last year but we still need a major, breakthrough in large-scale storage.

The attention that the Tesla Model S battery received when you consider it is 7,000 Panasonic lithium ion computer batteries put together, tells us that if we

can get a functional large-scale battery for renewable energy storage, there is pent-up demand.

We are decades behind on this. Why? It takes a decade to prove a battery is safe before it can be commercialised. Just ask Samsung.

Capital investment has shifted quite fast in the last 2 years. Last year investment in renewables was an all-time high of \$US 329B. Interestingly this new investment in renewables was roughly equal to the reduction in capital we have seen investing in oil. Capital investment in oil has dropped from \$US700B in 2014 to \$US 510B in 2015 and \$US 410B is estimated for 2016 [4].

Renewables now account for around 50% of all new power generation and last year saw a record of 121 GW of combined solar and wind power capacity installed [5].

There is no doubt the geopolitics of oil are complex and deserve a whole evening. Let me touch on a few key points.

We are seeing record production from countries like Saudi Arabia and Iran. New sources of oil such as oil sands and oil shale have contributed to a new level of self-sufficiency in the US.

There is considerable debate on whether we will see an uptick in oil prices or a long run of low prices. What I am watching is whether the costs of oil production continue to fall, particularly the impact of new drilling technology on costs. Lower production costs could mean supply could be maintained even with lower prices. There is consensus that gas prices will remain lower for longer.

What China does will make a difference. China recently unveiled some of its 13th Five-Year Plan (2016-20) which is targeting a 40-45 percent reduction in carbon-based energy by 2020. In this plan, there are aggressive new electric vehicle targets and a delay of China's emergency oil reserve plan.

These plans could temper China's oil demand and create a meaningful downside risk to any long-term oil price recovery.

Transport matters in all this. 28% of energy used in the US is move things – people and goods and 60% of this is personal vehicles. One of the key signposts to watch will be whether electric vehicles remain niche or whether they

will have real impact. All eyes will be on electric vehicle penetration in China.

How will these competing forces play out in the future? The team at Bank of America Merrill Lynch are predicting by 2030 that low carbon energy will account for around 60% of the global energy mix while fossil fuels will decline to 40% 5. Australia, with its large reserves of gas and coal faces growing risk in the next 15-25 years.

The other significant consequence of this shift is that investment will be required to ensure stability of the electricity system.

The electricity system hasn't changed much since Edison's first power station in 1882. The system largely uses fossil fuels and generates power centrally when the customer needs it.

Think of it like sitting around a radio listening to the broadcast versus the internet. The future will see a very different electricity system.

I believe the energy resources and electricity markets will be pulled and pushed by these opposing forces for the next 15-25 years before a new future arises.

I am excited about mining taking a leading role in the new energy futures. Here in South Australia we have the Olympic Dam and Prominent Hill uranium producers. Rio Tinto's Jadar discovery in Serbia shows promise with its lithium borate mineral – jadarite.

Jadarite's chemical formula is very close to the formula ("sodium lithium boron silicate hydroxide with fluorine") invented for the fictional substance "kryptonite" in Superman Returns [7]. The new mineral, unlike its fictional material in the movie, does not contain fluorine, does not emit electromagnetic radiation and is white not green! Who knows, maybe it will be a low-cost source of lithium to power those new electric vehicles.

AN UNEQUAL AND UNSUSTAINABLE WORLD

However, for all the excitement and opportunity there is a lot of inequality. How the resources and energy industry works with its local and national communities will be pivotal for not its "right to operate" not its "licence to operate" but its "privilege to operate".

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- A billion people will go to bed hungry tonight as we dine.





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- We see in our region people trying to escape conflict in their homelands by whatever means available to them and a new horrific market emerging in the trade of people.

And it's also an unsustainable world. Because we need more resources, for more people for less cost. Because what we are adding to the very thin fragile skin of just 80 km of atmosphere above us is changing our climate and the air we breathe.

- We know that when and where our rain is falling is changing.
- A billion people won't get a clean glass of fresh water tomorrow and soon another billion people will live in areas where fresh water will be at risk.

PARTNERS AND HELPERS IN BUILDING AN EXCITING, MORE EQUAL AND SUSTAINABLE WORLD

So, we have to ask ourselves what will the mining industry need to do to be partners and helpers in building a fascinating, exciting, more equal and sustainable world?

Well the fascinating and exciting bit - we have well covered. The mining and energy industries will be very much a part of this.

But this is not enough. To build a safer more equal world the way we think of each other must change. Nelson Mandela showed us how to put our common humanity ahead of our differences. He said – We are all “joined in an inescapable web of mutuality”.

We must see our common humanity is more important than our differences.

I look at Australia and despair when I hear people talk about indigenous history and Australian history as separate things.

My ancestors walked the hot sands of the Australian desert and my aboriginal friends' ancestors' ancestors walked those same hot sands.

Until we see all our 40-60,000 years of human history in Australia as our own joined history how are we going grow up as a nation and move forward into a common future?

To build a more equal and sustainable work we need to work on the big problems that require global collaboration like climate, water and supply chains.

Water is an intensely local problem but also a global issue. In places like Australia and the Gobi Desert in Mongolia we know water is precious.

The Bureau of Meteorology and CSIRO worked together to relook at the structure of the Great Artesian Basin for the first time in 30 years [8]. These basin-scale projects provide an important context for local water use.

The mining industry is also tackling water recycling. Oyo Tolgoi has reached a benchmark of 84% recycled water at the mine [9].

Society also demands a new level of transparency. Rio Tinto's taxes paid report is a good example of a new level of transparency. The mining industry is a major contributor locally and nationally for employment, royalties and taxes paid. The transparency of such reports allows the community to see the taxes paid in each country but also allows the community to hold the government leaders accountable for wise use of this funding.

I wanted to finish with a little story on safety. With all this fast-moving stuff, some things have remained very constant in the last 35 years of my career.

My first day at work, I was newly graduated geologist... think of an excited, eager squirrel and you will come close. This old mine foreman approached me and began to poke me in the chest, I still remember his breath, like tea and old cigarettes and he said, in a deep Scottish drawl “In this industry, lassy, y'are gunna see dead bodies. If ya canna hack it you should leave today”

Now when someone pokes you in the chest, you don't say anything but you think. And I was thinking – “I cannot change this man and there is much in this industry I cannot change” but that day, that moment, I made a lifelong commitment that I would do everything in my power to make sure nobody died on my watch.

Ironically I think he was trying to welcome me.

Now my sphere of influence that day was about half a centimetre but it grew and today as at Rio Tinto with my Board colleagues, we oversee how the company looks after the health and safety of over 55,000 people in 40 countries.

I believe we have the capacity to eliminate fatalities from our industry. All of us in the industry have grappled with the fact that despite lost time injury rates decreasing, fatalities have been hard to eliminate.

I am very encouraged by the programs to identify critical risks which could result in a fatality in the workplace and for all levels to go into the workplace to verify that

these controls are in place.

This approach, started at Escondida in Chile by BHP Billiton has been emulated by Rio Tinto. The essence of these programs is that the risks are identified for each work place, appropriate controls are put in place to manage these risks and importantly these controls are verified in the workplace by all levels of staff. Rio Tinto teams have now done some 1 million verifications in the workplace to ensure that critical controls are in place in their workplace. These efforts have found and fixed thousands of instances where the controls could be improved. All of this - before anyone is hurt.

Each of you has a sphere of influence. No matter how big or small your sphere of influence – we can all do something to make the world a safer place.

ESSINGTON LEWIS LEGACY – MAINTAINING RELEVANCE IN A CHANGING WORLD

Tonight, I have highlighted some of the areas of science that are changing fast and where science is improving and changing how the mining and resources industry works. I have no doubt that the future will be a roller coaster of fascination and excitement.

We have reflected on how the energy industry is changing because of the confluence of changes in supply and demand, geopolitics, technology and societies' demand to build a more sustainable world?

A more equal world will be an extraordinary challenge. We will not be able to build a more equal world until we see our common humanity is more important than our differences.

I have reflected on a country like Mongolia where working with the local communities and training a new set of leaders is vital to the privilege to operate in that country.

All of this is about ensuring our industry is relevant for the times in which we live. Essington Lewis understood that the heart of good business is simply to keep business relevant for the times in which we live.

I thank you for the chance to honour this important legacy which still resonates today.

Thank you.



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Exceptional blower efficiency from Kaeser

Remarkably quiet, yet highly efficient: energy-saving screw blowers from Kaeser Compressors for the low pressure range are now available in three sizes. Featuring an integrated Sigma 2 Controller, optimum performance is also ensured at all times and helps provide a dependable supply of quality compressed air that is also compatible with the future-oriented 'Industry 4.0' philosophy.

Kaeser's DBS, EBS and FBS series screw blowers prove that the tried and trusted technology which already powers Kaeser's compressor ranges to deliver significant energy savings, can also be successfully applied to the low pressure range. The new Kaeser screw blowers are up to 35 percent more efficient compared to conventional rotary blowers, yet they also outclass other comparable screw and turbo blowers through their significant energy advantages. After all, Kaeser's motto of "more air, more savings" applies to all of the company's products, not just compressors.

The rotors are uncoated so users can be assured that their outstanding efficiency remains intact even after years of use. The data provided for the effective total energy consumption and usable flow capacity correspond precisely to the machines' actual performance (as per the conservative tolerances provided for by Standard ISO 1217; measurements validated by TÜV-Süd). This ensures full transparency, with the savings calculated as a result of investing in the equipment actually being realised.

For optimal performance, the integrated Sigma Control 2 controller provides continuous and comprehensive monitoring, and allows straightforward connection of each machine to a communications network. 'Traffic light' LED indicators show operational status at a glance. Along with plain text display, 30 selectable languages and soft-touch keys

with icons, the Sigma Control 2 offers fully automated monitoring and control.

Where multiple blowers are being used, additional optimisation can be achieved by incorporating the Sigma Air Manager 4.0 (SAM 4.0) master controller. SAM 4.0 delivers more than just optimised blower air system efficiency. Thanks to its high level of data integration and multiple interface options, it can be easily integrated into advanced production, building and energy management systems, as well as Industry 4.0 environments.

Sectors such as the food and beverage, pharmaceutical, chemical, pulp and paper, textile and construction materials industries, and applications such as wastewater treatment, pneumatic conveying systems and power generation, can all benefit from this innovative screw blower technology.

Of course the screw blowers – which are Made in Germany – also possess the other outstanding qualities that Kaeser products are renowned for;

The new screw blowers feature an internal cooling system that makes the energy-intensive use of oil pumps and oil coolers superfluous. Furthermore, they feature a highly effective sealing concept that ensures long-term seal integrity, without the need for vacuum pumps.

The durability and reliability of the machines is also enhanced as a result of eliminating the need for auxiliary equipment and circulating oil lubrication. Cooling and process air are drawn in separately from outside the machine enclosure, which not only provides greater usable air mass flow for the same power consumption, but also ensures optimum cooling and efficiency.

All three sizes of screw blowers from Kaeser are complete turnkey machines. Installation is therefore a breeze presenting a truly 'plug-and-play' proposition and significantly reducing the work and costs required for planning, installation, certification, documentation and commissioning. Delivered as user-friendly, turnkey systems, Kaeser screw blowers simply need to be installed in position, and connected to the air distribution network and the electrical supply. A clever component layout further allows the units to be installed directly next to a wall or side by side, making them ideal where space is at a premium.

The DBS, EBS and FBS series screw blowers from Kaeser deliver flow rates from 6 to 67 m³/min with a pressure differential up to 1.1 bar, drive powers range from 22 to 110 kW. For more information visit www.kaeser.com.au or phone 1800 640 611.



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Pre-fabrication manufacturing set to lead to boost building industry

A new centre based at the University of Melbourne will help unlock the potential growth of Australia's prefabricated building industry by creating a co-operative training system between industry and universities.

The Australian Research Council (ARC) Training Centre for Advanced Manufacturing of Prefabricated Housing will advance and transform the building industry in Australia.

Led by Professor Priyan Mendis and Associate Professor Tuan Ngo from the Department of Infrastructure Engineering, the Centre is funded for a total of \$8M by the Australian Research Council (ARC), universities and industry partners, over four years.

It will directly engage students as well as academics and industry partners.

Professor Mendis said the Centre aims to unlock the potential growth of Australia's prefabricated building industry by creating a co-operative that is investing in new building technologies. He believes that manufacturing industries are still a cornerstone of a vibrant economy.

Professor Mendis said an emerging highly trained workforce is driven by the needs of customers and industry.

"This will help identify innovations in the use of advanced materials, design for manufacturing and assembly," he said.

"It will also provide solutions for affordable housing," he said.

"The Centre will enable the next generation of engineers and architects to apply advanced manufacturing ideas to prefabricated modular buildings."

Acting Deputy Vice-Chancellor (Research) Professor Julie Willis said the University of Melbourne is proud to lead the delivery of innovation and excellence through the

ARC.

"The Centre will secure the Australian industry's competitive advantage leading to local employment growth and increased exports of prefabricated products and services," she said.

"Through this program, we will train emerging industry professionals, enable industry, with world-leading research capability, to develop and apply new materials, processes and technologies that will create products and innovative business models," Professor Willis said.

The ARC Training Centre for Advanced Manufacturing of Prefabricated Housing is a highly collaborative venture involving four Universities: The University of Melbourne, The University of Sydney, Curtin University and Monash University.

Partner Organisations:

Surrey Engineering (Amoveo)

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http://www.arc.gov.au/ncgp/itrp/centres_outcomes.htm

<http://camph.eng.unimelb.edu.au/>

Large States see Big Falls in Building Approvals

Residential building approvals figures released recently by the ABS indicate that total dwelling approvals experienced a large decline during the month of September, said the Housing Industry Association - the voice of Australia's residential building industry.

"During September, total new dwelling approvals fell by 8.7 per cent due to big reductions in the larger states," explained HIA Senior Economist, Shane Garrett.

"During the month, a total of 18,945 approvals were recorded. Detached house approvals actually increased by 1.7 per cent during the month, while multi-unit approvals were down by some 17.5 per cent in month-on-month terms," added Shane Garrett.

"Despite the large drop in multi-unit dwelling approvals during September, the volume of approvals in this segment of the market is still at very high levels by historic standards - this means that the immediate pipeline of work will remain very elevated on the apartment side," Shane Garrett pointed out.

"The concentration of multi-unit dwelling construction in the large states like NSW and Victoria means that these big players bore the brunt of the reduction in multi-unit approvals during September," explained Shane Garrett.

"During September, detached house approvals rose to their highest level since May which was good news for both South Australia and Western Australia where detached houses still account for the large majority of new dwellings," concluded Shane Garrett.

In September 2016, total seasonally-adjusted new home building approvals increased by 9.4 per cent in South Australia and by 5.5 per cent in Western Australia. During September, building approvals experienced the largest decline in Victoria (-15.6 per cent) followed by New South Wales (-13.3 per cent). Queensland (-11.7 per cent) and Tasmania (-3.6 per cent) also saw reductions in approvals during the month. In trend terms, approvals eased by 6.0 per cent in the Northern Territory but grew by 15.8 per cent in the Australian Capital Territory.

The Advantages of an All-in-One Estimating System

In today's construction environment competitiveness is key, and to keep your business on top, you need to make sure you have the best tools available. This should include a fully integrated estimating solution, such as CostX®, which supports BIM & 2D takeoff, integrated workbooks and a customisable report writer, among other features. Check out our top four reasons below why you should upgrade now to an all-in-one solution:

Productivity

The principal advantage of using a full-function estimating system is productivity. With the right system, you can leverage intuitive technology to reduce human error. Streamline 2D and 3D/BIM takeoff with live-linked quantities, and have multiple users in the same office or different regions working on the same estimate simultaneously. Save time, win more work. Ultimately, speed and productivity will be the differentiating factors for a profitable business.

Accuracy

In the construction industry, productivity alone is meaningless without efficiency. You need to have a system which understands the intelligence in 2D drawings. Utilise the freedom of manipulating Excel®-like formulas and functions for precise calculations. Using computer-aided estimates where takeoff data is extracted and linked directly into the estimating process is not only more accurate, but also saves you the time and possible errors that come with having to re-enter information.

Consistency

Standardise your estimating process by enhancing cohesiveness. Working within the realm of an estimating software administers consistency throughout your business. This promotes a more centralised business model enhancing communication while greatly diminishing disputes amongst colleagues. Apply

previous projects or prebuilt models as benchmarks for current bids to reduce overlap and increase consistency. Set the standard on how to win projects across the company.

Presentation

Most notably, deliver concise presentations. In today's technology driven environment, companies are leveraging software to deliver a higher level of professionalism. Deploy an all-in-one estimating software in your business for crisp graphical reporting which can comprise of subcontractor comparison, model revisioning, and sourcing criteria. Display 3D BIM models integrated with their associated 2D sheets and show alterations in real time. Have confidence at crunch time and execute!

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Sod Turning Ceremony: Linking the Airport to the City

- Sod-turning ceremony signals start of construction of \$1.96 billion Forrestfield Airport Link project
- FAL will create new rail corridor to Perth's eastern foothills in 2020
- 8.5-kilometre rail line jointly funded by Australian and Western Australian governments

Work is underway on Perth's \$1.96 billion Forrestfield Airport Link (FAL) following the recent sod-turning at the site of the future Forrestfield Station.

Premier Colin Barnett said the FAL project was a key 2013 election commitment that would be delivered by the Liberal National Government in 2020, creating a vital rail corridor linking Perth's eastern suburbs to the central business district.

"The Forrestfield Airport Link will provide a much-needed 20-minute public transport link between Perth's CBD and the eastern suburbs, and importantly will service future projected growth of residential and business developments planned along the rail route," Mr Barnett said.

"It will also create 2,000 new jobs during construction.

"This project is yet another example of

the State Government's strong record in delivering much-needed large scale transport infrastructure across the metropolitan area."

The FAL project will create an 8.5-kilometre rail line, from a spur on the Midland line east of Bayswater Station, largely underground to Dundas Road in Forrestfield. It will include three new train stations, including two underground at Belmont (near Brearley Avenue) and Airport Central (Perth Airport T1/T2) and another aboveground at Forrestfield.

Federal Minister for Infrastructure and Transport Darren Chester said the Forrestfield Airport link will get people from the airport to the city efficiently - so they can get to work or home quicker.

"Eight of the 8.5 kilometres of the project will be built underground, minimising the impact on Perth and its residents," Mr Chester said.

"The project will be an impressive engineering feat, travelling 26 metres under the Swan River, providing opportunities for new jobs with local businesses.

"The Turnbull-Joyce Coalition Government is investing over \$50 billion in a record investment in infrastructure across Australia, including this vital project here in Perth."

State Transport Minister Bill Marmion said 20,000 daily boardings were expected to be taken as a result of the project.

"Building the rail line is an important step in improving public transport in Perth's eastern suburbs and reducing congestion in the metropolitan area," Mr Marmion said.

Preliminary works are underway at the Forrestfield end of the rail line, with relocation of key utilities complete and work set to start on the entry points to the rail tunnels before the end of 2016.

Two tunnel boring machines will arrive from Germany in mid- 2017, when drilling will begin.

Federal Minister for Urban Infrastructure Paul Fletcher said the Forrestfield Airport Link would enhance the economic benefits of the airport by improving access to the CBD for visitors to Perth.

"The Turnbull Government has committed to a number of significant urban rail projects around Australia to unlock growth and improve access to jobs and services," Mr Fletcher said.

"Supporting projects that provide long term integrated public transport networks, which help to alleviate urban congestion and which strengthen urban renewal opportunities is a key focus of the Turnbull Government."

The \$1.96 billion FAL project is jointly funded with the Western Australian Government committing \$1.47 billion and the Australian Government providing \$490 million.

TESTIMONIALS



"The AIB provides a platform for you to connect with industry peers as well as expanding your industry contacts whether you are a graduate or an experienced professional. With a strong focus on the individual rather than the company, the AIB leads the industry in professional development and recognition. The AIB hosts numerous events throughout the year including functions, forums, site visits, awards nights and professional development sessions which are always well attended by industry professionals. I strongly recommend people that are interested in contributing to the ongoing improvement of our industry, and their own professional standing, to become a member of the AIB and to get involved in some way."

Michael Van Dongen MAIB, General Manager, JAXON



Joining the AIB has been immensely rewarding on both a personal and professional level, I was honoured to have recently been nominated as the WA AIB Chapter President. The AIB has given me the opportunity to engage with a broad range of high calibre industry professionals and is a forum to contribute ideas to the wider building and construction industry.

I would highly recommend building and construction professionals to join the AIB. An AIB membership gives you professional recognition and the professional development offered is second to none, including access to regular events and networking opportunities. The AIB also plays an important role in advocating for the building industry and industry professionals keeping members well informed about the broader industry issues and opportunities that impact us all.

Jason Thomson MAIB, President, WA Chapter

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New Code of Conduct for WA's Building Industry

- Aims to stamp out inappropriate behaviour on construction sites
- Promotes timely payment of subcontractors
- Will apply from January 1, 2017 to major State contracts worth more than \$10m \

A new code of conduct for Western Australia's building and construction industry will be introduced to prevent anti-competitive behaviour, improve workplace safety and add to the suite of measures adopted by the State Government to ensure subcontractors are paid on time.

Finance and Small Business Minister Sean L'Estrange said the introduction of the WA Building and Construction Industry Code of Conduct 2016, together with recent amendments to the Construction Contracts Act 2004 and the introduction of Project Bank Accounts for Department of Finance contracts, would promote competition and support small businesses so they were not subjected to unfair business practices.

"Non-compliance of the code could see building and construction contractors excluded from working on Government projects," Mr L'Estrange said.

Commerce Minister Michael Mischin said the code would apply from January 1, 2017 to major State building and construction contracts worth more than \$10 million and would be rolled out to all other contracts when provisions could be drafted and included in the tendering process.

"This staged approach to implementation will ensure contractors tendering for major projects have the capacity to meet the obligations of the code.

"The code includes specific measures to support small business including prohibiting anti-competitive behaviour such as price fixing and sham contracting and the ability to sanction head contractors who had failed to make payments or return retention money within the specified time.

"It will also address unfair contracting terms where head contractors expect

subcontractors to sign contracts which could disadvantage them."

Treasurer Mike Nahan said the code would ensure value for money for WA taxpayers during the construction of State infrastructure projects.

The Construction Contracts Amendment Act 2016, which passed recently, will reduce maximum payment terms permitted in construction contracts to 30 business days, which equates to 42 calendar days, from April 3, 2017 and make it easier for subcontractors to access the rapid adjudication for resolving payment disputes.

Project Bank Accounts protect subcontractors from head contractor insolvency by ensuring funding is available to meet subcontractors' legitimate payment entitlements via a dedicated bank account, rather than relying on payment by the head contractor.

Fact File

- A Building and Construction Compliance Unit had been established within the Department of Commerce to monitor compliance with the code, and work closely with the industry to assist its participants in understanding the code
- More information is available at <http://www.commerce.wa.gov.au/bccmu>

Kerry Petersen appointed Deputy Director-General Major Projects and Property



Kerry Petersen has been appointed as Deputy Director-General Major Projects and Property with Queensland's Department of State Development.

A qualified architect, Ms Petersen has

held multiple senior positions overseeing high-profile public infrastructure programs and projects during her career in the public service.

Ms Petersen is leading the delivery of some of the state's key infrastructure projects including the Gold Coast 2018 Commonwealth Games venues and village and the North Queensland Stadium. Other program responsibilities include Property Queensland and Priority Ports.

"I am excited and privileged to have a senior role in the Queensland Government where I have the opportunity to ensure efficient delivery of significant programs and projects.

"I look forward to continuing to work closely with key stakeholders across the public and private sectors to ensure great outcomes for Queensland," Ms Petersen said.

The Department of State Development Director-General Michael Schaumburg said Ms Petersen's wealth of experience

would be of great value to her role and the department's senior leadership team.

"Ms Petersen will manage high profile infrastructure projects delivering significant economic opportunities across the state and we are honoured to have her on board," Mr Schaumburg said.

Ms Petersen has more than 25 years' experience in the Queensland public sector and is

the recipient of a number of awards including the National Association of Women in Construction – Achievement in Development Award (1997) and the Australia Day Achievement Medallion (2002) for the Department of Public Works.

She has a Bachelor of Architecture, Graduate Certificate in Management and Graduate Certificate in Strategic Asset Management. Ms Petersen also successfully completed the Australia and New Zealand School of Government Executive Fellows Program in 2015.

Ms Petersen was acting in the role for nine months prior to confirmation of her appointment.



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Ship Comes in with **BIG WINS** for Australian National Maritime Museum

The Australian National Maritime Museum has won no less than four awards in just one week, an extraordinary feat placing it at the very top of the list of must-see attractions in New South Wales. The Museum received the silver award for Major Tourism attraction at the prominent NSW Tourism Awards and has won prizes and awards across a range of categories for its excellence in construction and architecture, creativity, digital design and education.

The Museum's Warships Pavilion received the National Commercial/Industrial Construction Award - \$5 million to \$10 million (Stephen Edwards Constructions Pty Ltd), it houses the recently opened cutting-edge attraction Action Stations.

From construction to creativity, the Museum also won Best Educational Game for The Voyage in the 2016 SAE ATOM

(Australian Teachers of Media) Awards. The Voyage is an online game where the player takes the role of the Surgeon Superintendent of a convict transport ship in 1839, on a perilous journey from England to the far reaches of the known world: Van Diemen's Land.

Outreach and interaction have become key components in the Museum's

programs and activities, with visionary Director and CEO Kevin Sumption identifying the need to develop new and exciting ways to engage the Museum's increasingly 'touch-screen' audiences that transcend the traditional walk-in visitor experience.

Action Stations, designed in collaboration with internationally renowned architects Francis-Jones Morehen Thorp (FJMT), also won the Display category award at the prestigious World Architecture Festival Awards in Berlin.

With these myriad achievements rolling in, it is no surprise that the Museum has been recognised as an outstanding Major Tourist Attraction. Under the leadership of Sumption, the Museum has evolved into a multifaceted and dynamic institution, combining rich history and culture, innovative technology and superb design.

"We are absolutely thrilled and so proud to have been recognised for our achievements in this way. We are so grateful to have collaborated with so many wonderful and talented individuals and companies and to have such a dedicated team of staff and volunteers here at the Museum," said Kevin Sumption, Director and CEO of the Australian National Maritime Museum.



Kevin Sumption, Action Stations, Photograph by Rob Walsh



Action Stations, Photograph by Brett Boardman

Adding to these accolades is the Museum's own list of achievements, including but not limited to:

- More than 10million visitors on site since opening
- More than 793,500 child education visits since opening
- Over 3million online visitors per year
- Strong growth in Chinese visitation

at the Museum, particularly since the launch of Action Stations, which features translations in simplified Chinese

- Over the last two years, average visitation to the Museum was 500,000 per year
- 60% of the total visitors are regional and the Museum has an extensive regional touring program

Through its collaboration with leading firms and creatives, the Museum has achieved its goal of becoming an outstanding international tourism attraction which is already boosting tourism to New South Wales – just in time for its 25th birthday.

For more information: <http://www.anmm.gov.au/>



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CSR Set to Change the Facade of Australian Building

CSR, the name behind many of Australia's most trusted and recognised building products, is extending its expertise with the launch of an advanced panelised facade design and manufacturing business - CSR Inclose™.

An Australian first, Inclose™ will provide unitised rainscreen facades for the Australian commercial and high-rise residential construction markets. Working in collaboration with New York-based company ISLAND Exterior Fabricators LLC, Inclose™ will harness the technology developed by ISLAND which has pioneered panelised facade design for more than 15 years.

Honouring the company's commitment to



National September 11th Museum, NYC



HL23, NYC

innovation and investment, this alliance allows CSR to bring to the Australian building industry leading, world-class innovative technology as well as a system built with the quality and reliability of Australian manufacturing.

The Australian-made unitised rainscreen facades are large format panelised units, prefabricated with factory-installed windows and the specifier's choice of cladding to strict quality control for guaranteed performance. The panels, which can be up to 12 metres in length, integrate with traditional structures such as concrete and steel and are fully customised for each project. Inclose™ provides an end-to-end service for the whole building envelope, from design and manufacture to delivery and on-site installation.

ISLAND's panels have been installed on iconic and landmark buildings across New York City including the HL23, a 14-storey

apartment block positioned along New York's famous High Line, the National September 11 Memorial & Museum and the Gansevoort Hotels, as well as Boston University in Boston.

Introducing these unique, unitised rainscreens to Australia will revolutionise the building and architectural design industry. From increased speed of enclosure with less trades people and greater on-site safety to increased weather protection and improved airtightness, the benefits are immense.

Rob Sindel, CEO and Managing Director of CSR, said: "CSR is committed to delivering the latest technology and the most effective and cost efficient building systems. We continually invest in innovation and our expansion into facades systems, is a very natural progression.

"Through our alliance with ISLAND, we are able to harness a wealth of international experience and design expertise. This,

combined with the Australian construction industry knowledge from CSR, provides architects, engineers and builders with a high level of specification and construction security.

“There are exciting times ahead for the Australian building industry.”

CSR Inclose™ sees the potential for substantial growth in the coming years. Recent data released by prefabAUS shows the Australian construction industry is valued at \$150 billion with the prefabricated component valued at \$4.6 billion. The use of prefabricated products in the Australian building industry is expected to grow to 10% over the next twenty years.*

CSR Inclose™ manufacturing will be based in a new factory in Wollongong, NSW which is expected to employ 50 people locally within the first two years.

For further information on CSR Inclose™ please visit inclosedesign.com.au

* <http://builtoffsite.com.au/issue-01/disruption-collaboration-and-reassembling-the-jigsaw/>



Prefabricated panel being lifted into position

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Significant change for Western Australia in security for payments legislation

by TAMICA D'UVA and BENN WALLACE

All states and territories in Australia have some form of security for payments legislation enacted. The security for payments system in New South Wales, Victoria, Queensland, South Australia and Tasmania is based on the Building and Construction Industry Security Payment Act 1999 (NSW) . Western Australia and Northern Territory have been based on Part II of the Housing Construction and Regeneration Act 1996 (UK) .

Whilst the two models are markedly different, they share several procedural similarities and a common objective, to keep the money flowing in the contractual chain and bring about the timely payment of monies under construction contracts.

The date 15 December 2016 marked significant change for security for payments legislation in Western Australia.

After an independent mandatory statutory review into the operation and effectiveness of the Construction Contracts Act 2004 (WA) (the WA Act) in 2015 and a lengthy consultation period with stakeholders, significant amendments were brought into effect by the Western Australian Parliament .

These amendments were introduced in order to improve the operation of,

and access to, the rapid adjudication process for resolving payment disputes under the WA Act, in an effort to provide better protection for contractors and subcontractors operating in the construction industry .

These are the first round of amendments aimed at producing an immediate improvement to security of payments in Western Australia. A second round of reforms is to be introduced at a later date

The amendments

The amendments include:

- Extending the timeframe to lodge an application for adjudication to 90 business days;
- The inclusion of previously rejected or disputed claims (otherwise known as “recycled claims”) for adjudication;
- Automatic registration of adjudication decisions as judgments of the court;
- A relaxation of strict compliance with procedural requirements when lodging applications;
- A narrowing of the ‘mining exemption’;
- A reduction in the timeframe for

payments under a construction contract; and

- Allowing a withdrawal of an adjudication application.

Extension of application timeframe

The most significant amendment brought into effect has been an extension of the timeframe for applicants to lodge an application for adjudication. Applicants now have 90 business days from the date of a payment dispute, in lieu of the previous 28 calendar day timeframe to lodge an application .

The existing 28 calendar day period was seen as an impediment for many applicants, in particular smaller subcontractors . It was thought that smaller subcontractors often waited longer than 28 days to lodge an application for adjudication, usually out of fear of losing future work, settlement discussions continuing beyond the 28 day period, or often seeking legal advice once the time period for lodgment had passed . By increasing the timeframe for lodgment to 90 business days, it was considered that a better balance could be reached between increasing accessibility to applicants whilst continuing to maintain the rapid nature of the scheme .

This amendment now sees Western Australia with one of the most generous time periods for applicants to lodge an application for adjudication, in comparison to other States. Northern Territory has the closest timeframe to Western Australia of 90 calendar days . Whereas, New South Wales, Victoria, Queensland, South Australia and Tasmania have timeframes that range from as little as 5 to 20 business days, depending upon the circumstances .

Whilst the recent amendments have increased the timeframe to lodge an adjudication application, very little relief has been provided for response times. The previous 14 calendar day timeframe to lodge a response, has been amended to 10 business days . This is closely aligned to the Northern Territory which effectively allows 10 business days for a response . New South Wales, Victoria and South Australia on the other hand, require responses to be lodged within 5 business days of receiving the application or within 2 business days of receiving the adjudicator’s acceptance . Tasmania has slightly extended this period to 10 and 5 business days respectively and Queensland has a 7 to 15 business day response time depending on the type of claim being made .

However, the distinguishing feature of

the Western Australian amendments is that business days excludes the period between 25 December to 7 January, which is more generous than any other jurisdiction, other than Queensland, whose shut down period extends to 10 January . This time period was chosen as it represented the traditional industry shut down period for Western Australia . Most states only exclude standard public holidays, Saturdays and Sundays and the period between 27 to 31 December .

Gone are the days where applicants in Western Australia would serve an application for adjudication on a respondent over the Christmas period, in the hope the response was underprepared due to key people required to prepare the response on leave.

Recycling of claims now permitted

Previously in Western Australia the recycling of disputed claims from one payment claim to the next was not permitted to be the subject of an application for adjudication. A party was not entitled to roll over a rejected payment claim from one month to the next and then commence an adjudication application for the accumulated claims, as it was suggested that this defeated the purpose of the legislation . However, this is no longer the case.

The definition of 'payment claim' now includes matters covered by a previous payment claim, which now opens the door for adjudication of previously rejected or disputed claims . There is no doubt that this amendment will enable greater access to adjudication for applicants, who would otherwise be time barred from bringing certain claims to adjudication.

However, one qualification does exist. The payment claim, the subject of the application for adjudication, must not include matters that have previously been adjudicated . A party who has been unsuccessful on a particular claim item in a previous application for adjudication, cannot re-submit that claim in a subsequent payment claim and then proceed to adjudication. This recent amendment essentially brings Western Australia into line with other states.

Registration of decisions as judgments

The process for the registration of adjudication decisions as judgments has now been refined. Previously, an applicant that had obtained a favourable determination for the payment of monies, was required to apply for leave to the courts to register the determination as a judgment. This was often a protracted

and lengthy process, met in most cases with vigorous opposition from the respondent. However, all that is now required is the filing of a certified determination and affidavit, confirming monies have not been paid, in order to constitute an order of the court that can be enforced .

Similar provisions already exist in Tasmania, South Australia, New South Wales, Victoria and Queensland . Whilst the intent of this amendment is aimed at simplifying the process for registration of an adjudication decision, it will not prevent respondents applying for a stay on the enforcement of the order in circumstances where it wishes to exercise a right of review of the decision.

A relaxation of procedural requirements

Previously in Western Australia, an application for adjudication could be dismissed without a determination of the merits, if the application did not follow the strict procedural requirements set out in the regulations. A missed ABN on an application was enough for an application to be dismissed for non-compliance. However, common sense has now prevailed and a new provision has been inserted into the WA Act, that allows an adjudicator to determine the merits of an application, if it complies "sufficiently" with the procedural requirements.

Only time will tell as to how adjudicators will interpret this provision. It is likely that the days where applications were dismissed for an absent ABN or an incorrect reference to a section under the WA Act are behind us.

Mining Exemption

Like most states, it has always been the case that certain mining works were excluded from adjudication in Western Australia. In the past there has been much confusion and contention as to how the exclusion was to be interpreted and which mining works fell within the exclusion. The amendments have sought to limit the oil and gas exemptions further and provide clarification.

It is now the case that the fabrication or assembly of items of plant used for extracting or processing oil are excluded from the definition of construction work, however, normal construction works associated with processing facilities have not been excluded .

Reduction in the time for payment

In Western Australia, a provision in a construction contract requiring payment to be made in excess of 50 calendar

days was to be read down as requiring payment to be made within 50 calendar days. This has now been reduced further to 42 calendar days . It is expected that this will improve prompt payment and increase cash flow in the industry .

This amendment has not been applied retrospectively and will only apply to those contracts entered into after 3 April 2017. This provision is unique to Western Australia and the Northern Territory security for payments legislation. In comparison, most states rely upon the terms of the contract as to the timeframe for payment and only seek to enforce a specific timeframe where the contract is silent.

Withdrawal of an application

Western Australia was the only state whose security for payments legislation did not provide for the withdrawal of an application for adjudication by an applicant. The WA Act has therefore now been amended, to allow an applicant to withdraw its application . In addition, a further provision has been inserted to allow an adjudicator to issue a determination where terms have been agreed by the parties . It is expected that these amendments should facilitate settlement discussions between parties, prior to the handing down of an adjudication determination.

Effect of the amendments

For the financial year ending 2016, there were 225 applications for adjudication lodged in Western Australia, which was slightly less than the number of applications lodged in 2015 . Of those lodged, 77 were dismissed without a determination of the merits having been made . Only time will tell whether these amendments will achieve the aims of the Western Australian Parliament and result in an improvement in access to the adjudication system in Western Australia.

Whilst a second round of amendments has been proposed, no date has been set at this stage as to when they are likely to be introduced or what they will consist of.

If you would like to know more about the recent amendments to the Construction Contracts Act 2004 (WA), please contact the writers of this article.

Let's talk about SEX

Addressing gender imbalance in the construction industry

The construction industry has evolved gradually but significantly in the past decade, with major changes at organisational levels and onsite.

One Australian construction company is proactively raising the bar for gender balance, realising the potential of women in the workplace, both in terms of benefits to the bottom line and an enrichment of corporate culture.

ADCO recently hosted its 4th annual Women of ADCO national conference, this year with the theme "Advancing the Conversation" and guest speaker, Dr Louise Mahler, an expert on body language and vocal intelligence.

56 women and two male colleagues attended the event in Melbourne, all of them benefiting from the collegiate environment and practical advice, which covered the physical reality of how to shake a male colleague's hand with ease and confidence, how to use your posture, eye contact and voice to gain and maintain attention during a presentation or meeting, and useful tools for dealing with conflict.

Joint Chair of ADCO, Judith Brinsmead explains, "The aim of the conference was to encourage participants to keep talking about being women in the workplace and to continue that conversation with more confidence, especially in the exchange

and implementation of ideas".

"Engagement with our male counterparts is essential in continuing the positive growth of real gender diversity in ADCO and our industry," she continued.

"Dr Mahler provided a transformative experience. She was eloquently informative and entertaining. She taught us how to be heard without needing to resort to a 'male voice', how to exert confidence and be present in a situation, and to understand the connection between our mind, body and voice to become people of impact.

"It's our hope that the women of ADCO returned to work with newfound confidence to lean in, speak out and be heard."

While personal experiences differed, two common challenges emerged during the conference. "How to point out disrespectful behaviour of a male colleague in the workplace or industry without being labelled negatively, and how to pose opinions that are heard by male colleagues, and valued equally.

"This is the challenge of most businesses and affects a woman's self-worth, ambition, training and promotion in a workplace."

Industry research is testament to these findings. In a 2012 study and subsequent forum conducted by the National Association of Women in Construction (NAWIC), three key barriers were evident that the industry should address to attract women with suitable skills to the construction workforce: attraction, organisational and industry culture, and retention.



Judith Brinsmead

“There is still a long way to go, but in terms of a mature level of dialogue about the issues and barriers in business, and the benefits women bring to construction, we have made positive strides,” says Ms Brinsmead.

“A higher level of conduct is now expected and integrated into all facets of the construction industry, the style of staff social activities and networking opportunities has changed to be inclusive of women, and families in many cases are now involved in these activities too.”

As in every industry, women bring different dynamic to a business, and women from diverse backgrounds and disciplines contribute alternative perspectives and inject fresh ideas to tackle traditional challenges.

ADCO is leading by example as it is employing more women than ever before and in ground-breaking new roles.

ADCO a top 50 private company in Australia, with revenues in excess of a billion dollars and offices nationally, fosters a culture of diversity and gender balance. “We have created the framework, the management culture, in the business to support and encourage women, opening all channels to have an ongoing conversation about their interests,” states Ms Brinsmead.

The construction industry offers a broad range of roles spanning traditionally male-dominated areas such as labouring, engineering and project management, to more female-dominated departments such as administration, marketing and human resources.

The Australian Government’s Workplace Gender Equity Agency states that female employees represent 11.7 percent of the construction workforce, while Engineers Australia reports that more than 10 percent of its members are female.

Results from NAWIC’s survey revealed misperceptions of the construction industry were still perpetuated by family, friends, teachers, career counsellors and the media. Some of these did not see the construction industry as a viable choice for women, while others actively



Judith Overseeing Projects

discouraged women from entering the sector for reasons ranging from the long hours and inflexibility of conditions, to the extent of education required to enter particular roles such as engineering. Then there’s the undeniable fact that it is still a male-dominated industry.

“Attracting women to construction as a career starts with countering the stereotypes of our industry and educating women on the multitude of opportunities that exist, as well as the financial and personal rewards unique to our industry,” says Ms Brinsmead.

“Advancing women is about retaining women already in our industry. Retention means ensuring our industry provides workplace cultures, personal development opportunities and flexible working hours for all personnel and sustainable financial support programs for women so we can embrace motherhood if we so choose.”

From the NAWIC study, it’s clear the construction industry would benefit from defining and disseminating the business case for flexibility in the workplace, and senior management needs to commit to flexibility as a viable option for workers. While lack of flexibility affects more women than men, genuine integration of flexible working conditions will improve retention of women, and benefit the work-life balance of both women and men.

Another recommendation to emerge from the study was the need for a different approach to career development for women. Women are less likely than men to follow a progressive hierarchy of roles

due to a number of factors including competing priorities of career and family and differences in attitudes to and styles of leadership.

Construction organisations need to think differently about women’s career paths as their motivation for progression is less likely to be more money or more power, instead weighted in favour of better working conditions including having flexible role options and the opportunity to perform different and challenging roles.

Being open about the career options for women and widening the channels of communication to allow women more support and say in their own career development would help organisations retain more female talent.

Communication too is crucial. Management could enhance workplace conditions by increasing support for resolving issues, whether related to gender or not. This would help prevent such issues from escalating to a point where women feel they have no choice but to leave. Communication must also translate into action so that positive effects will change workplace culture.

While there is no magic formula or ‘ideal quota’ when it comes to gender balance in the workforce, Judith remains optimistic that through employing like-minded people with a genuine desire to see diversity in the construction industry, the evolution will continue.

For further information and especially on careers for women in ADCO visit

<http://www.adcoconstruct.com.au/>

Construction Forecasts Show Post-Boom Falls- and Rises

2016 was always going to be an interesting year for the building and construction industry in Australia. We have seen a once-in-a-lifetime resources boom passed, while we are currently experiencing the momentum of the impending peak of residential building.

Industry forecasts by the Australian Construction Industry Forum (ACIF) illuminate a turbulent next ten years as the Australian economy recalibrates itself, with some sectors set to experience a fall in work demand of up to 40% in the coming years.

ACIF Forecasts are released twice a year in May and November, and the November 2016 Forecasts have shown what remains in the wake of the largest economic event in recent Australian history.

Now that the peak has passed, opportunities for the industry's 1.1 million participants are simultaneously softening and relocating, however it is not all bad. The dynamics of business and public spending has seen some expenditure move between sectors, rather than fall away entirely, so the opportunity landscape has changed significantly. We are pleased to present the industry's own forecasts for all sectors, to help businesses navigate this

new environment.

The November 2016 ACIF Forecasts project a 6% fall in overall building and construction activity from \$220 billion in 2015-16 to \$207 billion this year.

However, this mild decline is far from uniform, and the headline numbers mask the shifting demand within each of the three sectors. There is evidence that the surge in Residential Building, especially the construction of apartments, has saturated demand, or is about to. While Residential Building as a sector will continue to rise until 2017-18, from the following year, the sub sector featuring apartments and townhouses is forecast to begin a fall of up to 40%.

The previous lift in Non-Residential Building and Engineering Construction from the mining boom and related activities has now fully petered out, however the sub-sectors have new public and private investment that makes the distribution of activity uneven within each

sector.

Engineering Construction Sector

The end of the mining and resources development boom has sliced the value of Engineering Construction work done by a third in the last three years and the value of work done has fallen to \$95 billion. However, the November 2016 ACIF Forecasts show an increase in infrastructure spending is already underway, which has softened somewhat the decline in engineering activity associated with the resources boom.

Demand in areas such as Telecommunications, Roads and Bridges, Railways and Harbours are positive, particularly in the eastern states. While further falls in

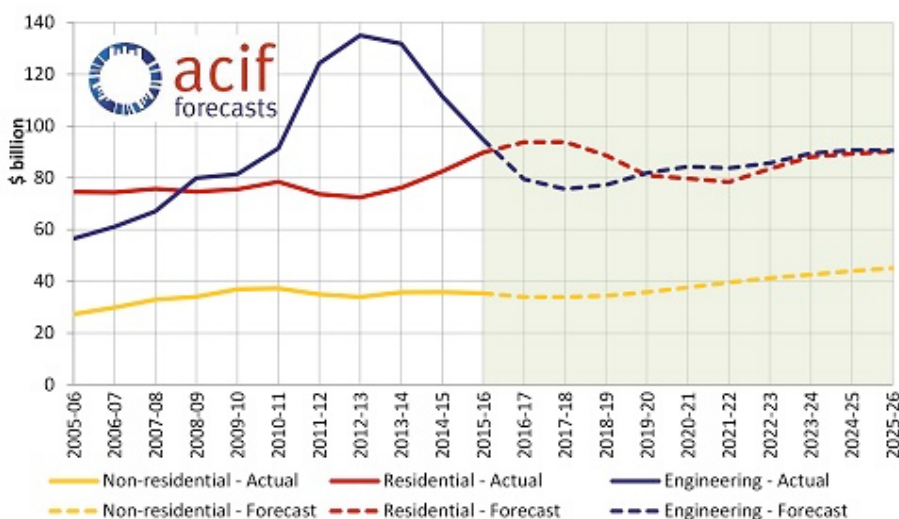
overall Engineering Construction are expected this year and next as mining development and supporting infrastructure projects are completed, revised projections point to the fall coming to a halt from 2018-19.

Residential Building Sector

Residential Building demand reached another record level in 2015-16 and is expected to continue to climb in 2016-17, albeit at a slower pace, before beginning to descend. Reflecting concerns about a potential glut in the market and the threat that this could pose to the stability of house prices and the banking system, additional prudential controls have reduced the availability of finance to investors and to developers. There are also signs of reduced foreign demand and lower immigration is starting to impact domestic demand. As such, the much-discussed sub-sector for apartments and townhouses will see some areas facing a 40% decrease from 2018-19.

Non-Residential Building Sector

The long-awaited recovery in Non-Residential Building is taking longer than expected. The prospects for this type of building work depends largely upon the outlook for non-mining business investment, and while this is improving, it is not yet enough to drive an increase in building activity until 2018-19. Particularly for this sector, concentration on the overall picture risks obscuring where the growth is coming from. Sub-sectors such as Accommodation and Other Commercial will enjoy growth next year, followed by other sub-sectors from



10 year outlook for Residential Building, Non-Residential Building, Engineering Construction

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2017-18, in line with the activities where Australia is improving in competitiveness.

States and Territories

The outlook for building and construction in the next two to three years is more upbeat in the more populous states, especially New South Wales and Victoria. The projected decline in Residential Building activity will arrive later in these states and will not be as deep, given underlying strength in the economy in these states and continued population growth. Non-Residential Building has been growing in these states, reflecting stronger economic fundamentals. These states are also leading the way in reinvesting in critical infrastructure.

Employment

The November 2016 ACIF Forecasts project that employment in construction will fall from 2016-17 and for the next six years.

The projected increase in employment in Residential Building activity in the next few years is no longer sufficient to offset the numbers of jobs lost in Engineering Construction as mining and export infrastructure projects are completed, especially in Western Australia and Queensland.

The decline in employment will deepen when Residential Building activity starts to decline within the next two years.

What are the ACIF Forecasts?

The ACIF Forecasts are the industry's own forecasts, produced by Australian Construction Industry Forum, which is a peak consultative body for the building and construction industry. The ACIF Forecasts were established to provide businesses across the entire industry with a reliable outlook for their business prospects, to aid better planning and more profitable, successful businesses. The ACIF Forecasts are rolling ten-year forecasts across three sectors: Residential and Non-Residential Building, and Engineering Construction. These Forecasts are a primary source of market information for the construction and building industry in Australia, providing decision makers with insights into emerging trends that are essential for planning; work demand, labour requirements, construction costs and major projects.

Respected economic modellers, using data from the Australian Bureau of Statistics and Cordell Information, prepare the ACIF Forecasts before rigorous review by ACIF's Construction Forecasting Council, which is an industry panel of expert analysts and researchers.

How the ACIF Forecasts are produced?

The ACIF Forecasts are prepared using top down and bottom up analytical frameworks.

They are prepared by blending macroeconomic forecasts of the domestic and international economy with information about the projected share of construction activity by sector and subsector, by region. The outlook for expenditure is supplemented by Cordell Information's detailed project database – a repository for the construction project pipeline.

Types of construction activity include Residential Building, Non-Residential Building and Engineering Construction with around 20 sub-sectors across these sectors. The regional analysis splits Australia-wide projections by state/territory, capital cities and 'rest of state'. The definitions of the asset types is that of the Australian Bureau of Statistics, to retain constancy throughout years of forecasts.

The 'top down' framework starts with the preparation of economic forecasts. These are compiled through the use of the AUS-M model which is operated by Outlook Economics. The AUS-M model is a large quarterly time series structural model of the Australian economy. It is based on the TRYM model, originally developed by the Australian Treasury. AUS-M builds on TRYM by incorporating input-output based demand systems and more industry and commodity detail. In terms of common labels, AUS-M is a modern Keynes-Klein-style model, to which CGE features have been added.

Forecasts for the global and the Australian economy are prepared. The forecasts include information about policy settings, including fiscal and monetary policies, as well as supply and demand, investment, trade, capital and labour markets, and changes in prices. A high level of industry detail is also provided in the AUS-M forecasts, spanning investment, output, employment and prices. The key elements

of the National accounts that relate to construction are tracked in detail, which is very helpful when projecting changes in construction expenditure which is largely a portion of Gross Fixed Capital Formation and public sector spending and investment.

AUS-M also involves considerable information about demographic change in Australia. Information is tracked about natural growth, net immigration and net internal migration.

The Building Activity Model (BAM) draws together 'bottom up' information tracking actual construction projects and actual construction spending and employment over the recent past in considerable industry and geographic detail. Data is sourced from the ABS National Accounts and Buildings Approval data, and Cordell Information. The BAM identifies the share of investment in the asset types that make up the residential and non-residential building and engineering construction sectors by construction type and subcategories and across Australia, by state, by capital city and by the rest of state.

Role of the Construction Forecasting Council

ACIF's Construction Forecast Council (CFC) plays an integral role in shaping the subsector-specific outlook of spending. The CFC is comprised of economists and industry leaders whose role is to review and provide input to the ACIF Forecasts.

Both the wealth of professional experience of CFC members and the unique insight their respective organisations offer ensures that ACIF Forecasts are credible and provide robust demand projections for the industry in Australia.

Australian Institute of Building Members enjoy a 10% discount on the ACIF Forecasts. Ask AIB for more information on the code for this discount. ACIF Forecasts are available in two formats: Australian Construction Market Report, which has detailed expert commentary, data and charts; or the ACIF Customised Forecasts Dashboard, where you can create your own query on work demand, construction costs, labour requirements and over 6,000 Major Projects from Cordell Information. Find out more about ACIF Forecasts at www.acif.com.au/aib

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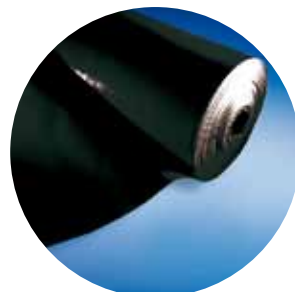
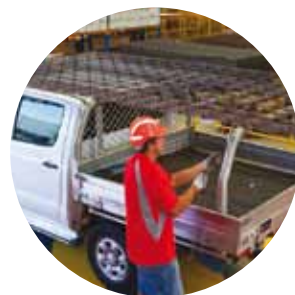


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MATES

in Construction

MATES in Construction is Australia's leading industry suicide prevention organisation focusing on raising awareness, building capacity, providing help and research.

We recently caught up with CEO Jorgen Gullestrup to find out more:

1. Where and when did MATES in Construction kick off?

In 2002, the Building Employee Redundancy Trust (BERT) formed the Suicide Prevention Research Project to formally examine suicides. A seven year study ensued that examined and analysed 158,749 workers from 1995 to 2001 using industry rather than coronial data. The study concluded:

"Suicide is a significant problem in Queensland's Commercial Building Construction (QCBC) industry, with almost 10 members each year taking their own life. When compared to Australian male and Queensland male suicide rates across the same periods, the QCBC rates were 46% and 25% greater respectively".

The report recommended that a campaign raising awareness about mental health and wellbeing, combined with good "gatekeeper" training should be implemented in combination with an industry specific intervention program for workers with suicidal thoughts.

MATES in Construction was incorporated on 12 March 2008 in Queensland.

2. What are the main objectives of MATES in construction?

The principle objective of MATES in Construction is to develop appropriate intervention strategies using existing



*MATES in Construction CEO,
Jorgen Gullestrup*

industry structures and a best practice approach to suicide prevention.

3. How many lives are lost each year to suicide in the construction industry?

Every year 190 Australians working in the construction industry take their own lives, this means we lose a construction worker every second day to suicide.

4. Of this, what is the breakdown in male and female numbers?

We are unable to calculate rates for females due to small numbers of suicide.

5. Is there evidence to suggest what may trigger these suicides?

Triggers:

- Work related (long hours, pressure, bullying)
- Interpersonal factors (family, relationship problems)
- Individual factors (alcohol and substance abuse, gambling)

6. What is the main age group that is at issue here?

In the Queensland Commercial Building Construction Industry, young employees (15-24 years) had very high suicide rates (58.6 deaths per 100,000 population). This was 2.39 and 1.93 times greater than the working-aged male population in Australia and Queensland, respectively.

7. There is a training program in place, can you tell us about that?

General Awareness Training (GAT) is a one hour onsite awareness session that leads the workforce through a discussion about suicide and mental health in the industry. Connector training is a four hour session conducted onsite and provides workers with the confidence to support co-workers in asking about suicide, mental health and in connecting individuals to help. Applied

Suicide Intervention Skills Training (ASIST) is a two day intensive, practice based course to help recognise persons who may be experiencing thoughts of suicide and empower intervention to prevent the immediate risk of suicide.

Life Skills Toolbox training is a resilience skills program aimed specifically at young workers which includes such topics as financial literacy, drug and alcohol awareness, communication, bullying and harassment, managing emotions and suicide awareness.

8. Do you cover all states and territories in Australia?

MATES in Australia currently operates in Queensland, New South Wales, South Australia and Western Australia.

9. Where does your main source of funding come from?

MATES is funded by industry, donations, sponsorship, fund raising and the Federal Department of Health.

10. Our industry employs more than a million people nationally – what is your main message to those people?

Whilst we have a positive impact on suicide rates, our work is not complete. We need to continue looking out for each other, noticing changes in behavior and having the courage to ask “Are you thinking about suicide?”

More details including training options can be found at: matesinconstruction.org.au

YourTradeBase helps Trade Business' become more efficient

YourTradeBase is a service-business based software that helps you win more work, saves you hours and delights your customers whilst helping you to avoid the administrative side effects. The company has conducted a survey on how paperwork is preventing your business from growing, further proving the need for this type of software.

The survey produced some astounding findings about the time and money spent on paperwork over the time frame of a year from the Trades Industry. Businesses spend on average 2.5 months on paperwork with a spend of approximately £5,657 per year. These figures back up the 51% of small business owners who believe that paperwork is the main reason thwarting their business growth.

Taking the Trade by storm

With this in mind YourTradeBase has managed to try remove the short falls above. Since its official launch in January this year, it has managed to help trades people win a staggering £40 million worth of quotes and estimates in their respective trades industry. The company now assists 27 Service/Trade based businesses, stemming all the way from the Building

industry to Computer repair based companies.

Adam Austin the CEO and Co-founder commented, “Following on from many years of extensive research and trial and error we are absolutely delighted to have helped out so many business and people in the industry, £40 million worth of won work is something we couldn't have imagined happening for a long, long time”

The company is constantly trying to better itself and is already developing new initiatives that will assist the trades industry win their next £40 million.

Refer a friend scheme

YourTradeBase has already established some strong partnerships with small business owners and individuals in the trade service business industry. Excitingly

the company has just released an easy to use ‘refer a friend’ scheme to help other tradesman reduce their time taken on paperwork too. The scheme gives tools to current users to help out friends and fellow tradespeople in just the click of the button. With the new ‘refer a friend scheme’ there is an opportunity to share the success of the software through email, printed voucher, Facebook or via unique link.

With the new refer a friend scheme added onto the back of YourTradeBase's successful first 10 months, it will further reinforce the company's position in the service based software industry. For full details of the of the scheme you can visit www.yourtradebase.com.

AIB NEW MEMBERS

Section 1

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

13 Oct 2016 – 27 Jan 2017

King Wai Chau MAIB	HK
Immaculate Keung AMAIB	HK
Wai Shun Kwan AMAIB	HK
Neil Ashbee MAIB	NSW
Marinko Marjanovic AMAIB	NSW
Srinath Perera FAIB	NSW
Kyle Robertson MAIB	NSW
David Tatler MAIB	NSW
Chee Yong Lim AMAIB	OS
Sukhjinder Seehra MAIB	OS
Isaac Morrison AMAIB	QLD
Ashley Ney MAIB	QLD
Benjamin Plunkett MAIB	QLD
Alistair Lindsay MAIB	TAS
Argaw Tarekegn Gurmu AMAIB	VIC
Daniel Baldwin MAIB	WA
Matthew Dreyer MAIB	WA
Kyle Timothy Fairclough MAIB	WA
Billy McCarthy MAIB	WA
Taz Vithal MAIB	WA

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 qldbuild@aib.org.au

Victoria vicbuild@aib.org.au

South Australia & NT sabuild@aib.org.au

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William (Bill) Mansell AM FAIB Council Representative - New South Wales

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David Burnell FAIB Council Representative - Victoria

Peter Overton FAIB Council Representative - Tasmania

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