

PROUDLY SUPPORTED BY



PROUD MEDIA PARTNER



New South Wales

IPWEA

INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA

CONSTRUCTION ENGINEERING AUSTRALIA

FEB/MAR 2020

V6.01



CONSTRUCTION
CIVIL WORKS
CIVIL ENGINEERING

PRINT POST APPROVED - 100001889

THE RISE OF
MODULAR POOL
TECHNOLOGY





CIVENEX[®]

AUSTRALIA'S PREMIER INFRASTRUCTURE EXPO

19-20 March 2020

International Convention Centre, Sydney



25,000+

Registered Attendees

350+

Exhibitors

300+

Industry Speakers

BACK BIGGER AND BETTER THAN EVER!



To discuss securing a booth at CIVENEX call or email
Louise Taplin, Sales and Marketing Manager on

☎ 0488 015 534 or ✉ louise.taplin@ipweansw.org

🌐 www.civenex.com 🌐 www.ipweansw.org

New South Wales



IPWEA

INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA

contents

FEB/MAR 2020
Volume 6 Number 1



Published by:

Editorial and Publishing
Consultants Pty Ltd

ABN 85 007 693 138
PO Box 510, Broadford
Victoria 3658 Australia

Phone: 1300 EPC GROUP (1300 372 476)
Int'l: +61 3 5784 3438 Fax: +61 3 5784 2210
www.epcgroup.com

Publisher and Managing Editor

Anthony T Schmidt

Phone: 1300 EPCGROUP (1300 372 476)
Mobile: 0414 788 900
Email: ats@epcgroup.com

Business Development Manager

Lawrence Whiter

Mobile: 0418 543 821
Email: lawrencewhiter@bigpond.com

National Advertising Sales Manager

Yuri Mamistvalov

Phone: 1300 EPCGROUP (1300 372 476)
Mobile: 0419 339 865
Email: yuri@epcgroup.com

Advertising Sales - SA

Jodie Gaffney - AmAgo

Mobile: 0439 749 993
Email: jodie@amago.com.au

Advertising Sales - WA

Licia Salomone - O'Keeffe Media

Mobile: 0412 080 600
Email: licia@okm.com.au

Graphic Design

Annette Epifanidis

Mobile: 0416 087 412

TERMS AND CONDITIONS

This publication is published by Editorial and Publishing Consultants Pty Ltd (the "Publisher"). Materials in this publication have been created by a variety of different entities and, to the extent permitted by law, the Publisher accepts no liability for materials created by others. All materials should be considered protected by Australian and international intellectual property laws. Unless you are authorised by law or the copyright owner to do so, you may not copy any of the materials. The mention of a product or service, person or company in this publication does not indicate the Publisher's endorsement. The views expressed in this publication do not necessarily represent the opinion of the Publisher, its agents, company officers or employees. Any use of the information contained in this publication is at the sole risk of the person using that information. The user should make independent enquiries as to the accuracy of the information before relying on that information. All express or implied terms, conditions, warranties, statements, assurances and representations in relation to the Publisher, its publications and its services are expressly excluded save for those conditions and warranties which must be implied under the laws of any State of Australia or the provisions of Division 2 of Part V of the Trade Practices Act 1974 and any statutory modification or re-enactment thereof. To the extent permitted by law, the Publisher will not be liable for any damages including special, exemplary, punitive or consequential damages (including but not limited to economic loss or loss of profit or revenue or loss of opportunity) or indirect loss or damage of any kind arising in contract, tort or otherwise, even if advised of the possibility of such loss of profits or damages. While we use our best endeavours to ensure accuracy of the materials we create, to the extent permitted by law, the Publisher excludes all liability for loss resulting from any inaccuracies or false or misleading statements that may appear in this publication.

Copyright ©2020 - EPC Media Group

Registered by Australia Post

Publication No. 100001889

ISSN 2204-7247



- 2** Editorial
- 4** Industry News
- 10** Cover Feature: Myrtha Pools
- 16** Aquatic Facilities
- 20** ACRS Feature
- 26** Sustainable Flooring
- 30** IPWEA NSW News
- 36** Concrete Institute News
- 40** Precast Technology
- 42** National Precast Feature
- 50** Construction Technology
- 55** Special Report: Asset Efficiency



5



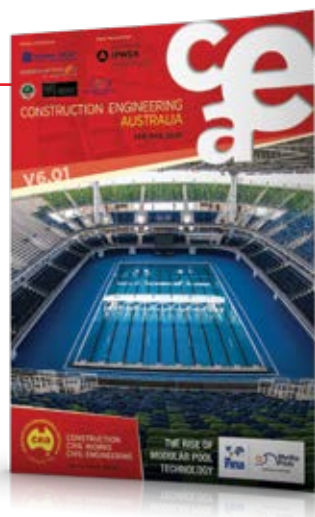
16



30



46



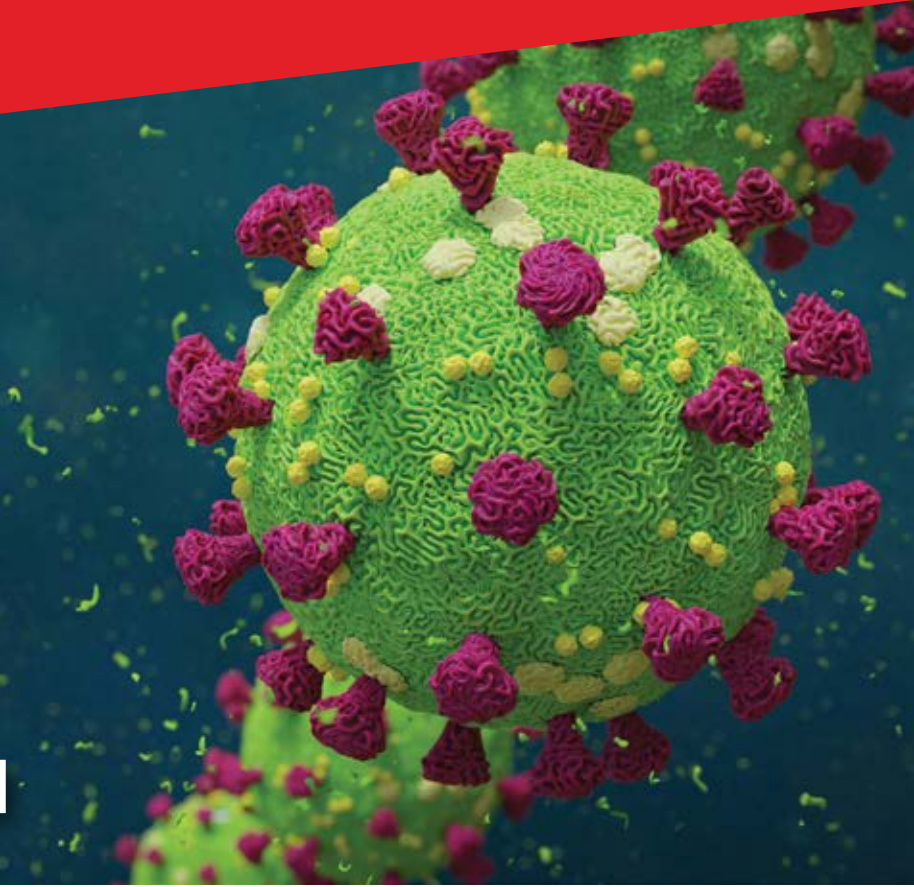
About the Cover

The use of modular technology is increasing exponentially across all sectors of the construction industry, including the aquatic industry. Myrtha Pools have been the market leader in modular technology for swimming pools for decades. Between Australia and New Zealand there are now in excess of 200 individual Myrtha Pool installations, together with thousands more throughout over seventy countries worldwide.

► Turn to Page 10 for the full story.

And now for something completely different...

Doing business in a 'post COVID-19' world



Dear Readers,

To say that we, both globally - and especially, as a Nation - have been dragged into 'unchartered territory' by the emergence of COVID-19 would be an understatement of the highest magnitude. While the planet has previously experienced the threat of global pandemics, this is clearly (to coin a phrase) 'next level'.

Now, while I have called on the time-honoured introductory line from the famous *Monty Python's Flying Circus*, for the main title, that was more to: a) grab your attention (if you're reading this, it worked!); and b) provide an indication that I would like to focus on a different part of the COVID-19 discussion. That focus, is highlighted by the sub-heading of this editorial - namely: meeting the challenges of rebuilding businesses, industries and economies in a 'post COVID-19 world'.

Before I continue, I would like to make it absolutely clear that I am NOT attempting play down the seriousness of the COVID-19 pandemic, or suggest in any way that the responses of Governments across Australia or around the world are too extreme or somehow unwarranted; quite the contrary. Indeed, I'm feel certain that I am with the majority in sincerely hoping that these measures are able to stem the global impact of this highly virulent and extremely serious disease - a disease that not only continues to have a tragic human cost, but one which has also brought the global economy to its knees and entire countries to a grinding halt.

While there can be no doubt that COVID-19 will continue to wreak havoc globally for some time to come - indeed, we here in Australia are still only at the 'front-end' of the crisis - it is also important to remember that despite the tragic cost, all is not lost.

At the time of writing, more than 65,000 of the current 115,000 globally reported cases have recovered. While that is, no doubt, of no comfort whatsoever to those who have lost loved ones, or who's loved ones continue to suffer, it does offer some hope in terms of our ability to move beyond the current crisis and rebuild.

And therein lies the key: we will need to rebuild - small businesses, large businesses, entire economies. What's more, we're going to have to rethink the way we go about things... especially in the short term.

For all intents, as it currently stands, we look as if we're set to 'lose' at least 6 (and more likely 9-12) months of normal economic activity across all sectors globally. And it's not just a small loss. In many instances, there will be periods where there is total cessation of activity across a wide range of industry sectors.

For example, even as I write this, I am receiving a constant influx of emails alerting me to cancellations and rescheduling of conferences and trade shows across the globe, as organisers and participants alike decide it's just 'not worth the risk' to staff and visitors. Needless to say, the flow-on effects of these cancellations and changes - not only to the conference / expo industry

and the hospitality industry, but also to manufacturers, equipment suppliers and service providers - is massive. And that's just one industry sector.

That said, I do believe we have the ability to rebuild, but it will take a concerted effort from all - governments, industry and individuals. Throwing our hands up in despair and 'walking away' is not an option.

Governments will need to get projects fast-tracked and industry will have to respond accordingly... and we'll all have to do our part to support small businesses - especially in the hospitality, retail and service sectors who will all be 'doing it extremely tough'.

The good news (for Australia at least), and the thing that gives me hope for a bright future post-COVID-19, is that as Australians, we're used to standing together in the face of adversity. In fact, we're renowned for it! Whether it's bushfires, floods, cyclones, or other natural disaster, we ALWAYS stand together and get through. The COVID-19 crisis should be no different.

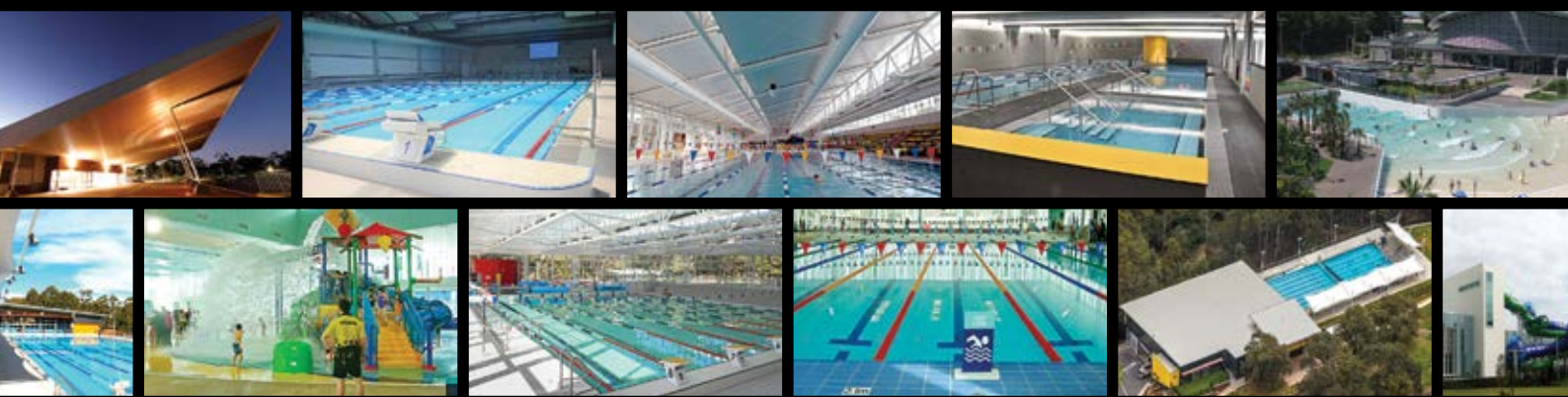
Anthony T Schmidt
Managing Editor

IS YOUR AQUATIC ENGINEER TRULY INDEPENDENT?

There's no such thing as a 'one size fits all' solution for commercial pools and aquatic centres. From pool design, construction, heating, filtration, HVAC and any other number of factors, EVERY pool and aquatic centre design needs to take into account not only the clients specific needs, but also the very specific engineering requirements of the site.

Making sure you get the right planning, design and engineering advice from a fully independent, professional aquatic engineer – free from any conflict of interest - is paramount. It's the **ONLY** way to be sure that you're getting **ALL THE FACTS** and **ALL THE AVAILABLE OPTIONS** to meet your needs.

When it comes to choosing and Aquatic Engineer – choose wisely...
it may end up being one of the most important choices you make.



**GEOFF
NANNES
FONG &
PARTNERS**

Geoff Nannes Fong and Partners

SYDNEY

68-70 Crown Street, Woolloomooloo NSW 2011
T: (02) 9332 5100 E: sydney@gnfp.com.au
Contact: Brad Fong or Gordon Smith

PERTH

L2 Cedar House, 1321 Hay Street, West Perth WA 6005
T: 0418 678 993 E: perth@gnfp.com.au
Contact: Geoff Nannes

STRUCTURAL & AQUATIC ENGINEERING
WWW.GNFP.COM.AU



KEY BUSHFIRE STANDARD OPEN FOR ALL AUSTRALIANS TO ACCESS

Standards Australia partners with the Australian Commonwealth government to jointly fund access for all Australian's to AS 3959:2018 Construction of buildings in bushfire-prone areas until 30 June 2021.

During February, Adrian O'Connell, Standards Australia's Chief Executive Officer and Karen Andrews MP, Federal Minister for Industry, Science and Technology announced a joint funding agreement for access to AS 3959:2018, *Construction of buildings in bushfire-prone areas*, for all Australians.

"This is a difficult time for many individuals and communities. When the scale of the disaster became apparent, I wanted to make sure that Standards Australia was directly contributing to the broader Australian response," said CEO of Standards Australia, Adrian O'Connell.

By funding access to this standard together with the Commonwealth Government, Standards Australia hopes that as communities rebuild after these most recent bushfires, they do so with access to Australia's construction standard that deals with bushfire prone areas.

"I am very proud that we have been able to announce this today," said Mr O'Connell.

The announcement comes just months after Standards Australia put in place a new distribution and licensing framework to provide more options for delivering access to Australian Standards. Standards Australia and the Commonwealth, through the Department of Industry, Science, Energy and Resources will be jointly funding the access until 30 June 2021 using the sponsored access pathway outlined in the distribution and licensing framework.

"When we announced our new distribution and licensing framework in November, being able to announce

a partnership like this so quickly is a significant achievement for all involved. I would like to thank Minister Andrews and her Department for working with us over the last few weeks to make this happen," said Mr O'Connell

Standards Australia's Distribution and Licensing Framework Policy launched last year and has been paramount in the company's ability to fund and open access to this standard and is an important example of how the new framework can support communities.

"It's the nature of Standards Australia to support our nation and having control over our content has given us the opportunity to do this," concluded Mr O'Connell.

AS 3959:2018, *Construction of buildings in bushfire-prone areas* provides guidance to professionals in the building and construction industry and is primarily concerned with improving the ability of buildings in designated bushfire-prone areas to better withstand bushfires.

Regarding the bushfires more broadly, Mr O'Connell said it was too early to say what if any work needs to be done with technical standards following the bushfires.

"Everything that we've heard so far is telling us that houses built to the standard performed well. We're currently looking for data about how AS 3959:2018 homes held up and working with relevant committees to support their ongoing work to help in this rebuilding phase."

AS 3959:2018, *Construction of buildings in bushfire-prone areas*, will soon be available as a PDF to all Australians until 30 June 2021.

Standards Australia is working with its distributors on making the access available. Standards Australia will make a further announcement on access points in the coming weeks.

LANDMARK PARTNERSHIP BRINGS STEM TO LIFE IN CLASSROOMS

Science, Technology, Engineering and Mathematics (STEM) will be brought to life in primary schools across the nation through a landmark partnership between the peak employer group for the resources and energy industry and the market leader of Australian children's publishing.

Australian Resources and Energy Group AMMA will join with Scholastic to connect educators and students with STEM fields and the diverse and rewarding careers offered within the sector.

"Ahead of International Women's Day, AMMA is incredibly excited to announce our new partnership with Scholastic, the unrivalled leader of Australian children's publishing," Tara Diamond, AMMA Director Operations, said.

"We can think of no better way to engage students, particularly girls, with STEM industry concepts and change the often-outdated image of the industry through resources and books. We aim to tell stories about the industry and connect STEM subjects to real world activities and jobs.

"As a renowned provider of education materials in classrooms all over the country and with an iconic book club and book fairs, Scholastic is an exceptional platform to provide young children and educators with important STEM and industry related content and inspiration.

"This initiative will do wonders in promoting and raising awareness, to both girls and boys, about the range of STEM-based careers within Australia's incredibly diverse resources and energy industry."

The partnership between AMMA and Scholastic will see teacher resources and early reader books distributed in hard copy and digital form, accompanied with reading discussion notes and lesson plans for teachers.

Female role models and characters will feature in the resources and energy industry stories, ensuring students can make a memorable connection between STEM subjects and how they relate to career opportunities.

"AMMA is proud to lead the way with a number of campaigns and projects, led by the Bright Future STEM Primary School Program, to promote STEM and the resources sector to school-aged children," Ms Diamond said.





CAR SPACE BY DAY, POP-UP PARK BY NIGHT

As public space becomes premium in our cities, could boutique sidewalk activations known as parklets be the solution?

Pop-up parks or parklets are mobile temporary sidewalk extensions which swap a parking space with a parking space-sized park. Rising to prominence in the streets of San Francisco in the early 2000s, they've since popped up in streets all around the world and could be on their way to your local suburb.

Dr Mike Harris, UNSW Built Environment landscape architect and urban designer, says that parklets are an example of the innovative ways streets could capitalise on underutilised space.

"What parklets do is activate a social space in a street that potentially doesn't have any," he says.

"With more people in our cities we need to be smarter with our public space, and on-street car parking is an obvious, if sometimes sensitive, opportunity. The amount of car parking on our high streets, at the sake of other uses, doesn't really stack up economically, socially, or environmentally."

A simple parklet may provide seating, plants and shade to passers-by to relax and enjoy the atmosphere of their surroundings.

"They're usually quite a simple setup; some seats, planter boxes and sometimes shade on a platform that extends from the footpath," Dr Harris says.

Public verandas, performance venues, workshop spaces, podcast studios and libraries, are among the more expansive car space turned park designs to date.

"Because car spaces are essentially temporary storage modules, you can simply plug in a public space... which will benefit more people than the single car space," he says. "In this way you could say parklets return public space to the public."

He says that because parklets tend to be temporary or seasonal, "things can always return to normal relatively quickly if needed".

"People don't really complain if it's just one spot," he says.

According to Dr Harris, parklets could be a rare 'win-win' for councils, satisfying both local businesses and residents.

"Councils may take a liking to them because they're quite novel, as an installation, they get an immediate response and get noticed by locals, and they can be seen to be taking an active role in the community."

"Putting a new public space in front of a café for example, they become a big beneficiary because you attract people to that location and effectively give the café new spill-out space. This can inject a new type of social activity into the street, and then it can snowball with increased foot traffic into a more popular street in general."

There have been small pockets of street activation experimentation in Australia, notably with Sydney's Waverley and Randwick councils. The inner-city suburb of Glebe has also hosted trailer parklets, which were crowd-funded by the community, local businesses and the City of Sydney.

He says that while most are council led, there is potential for the community to play a more active role.

"They could be more locally-led, and locals could engage in discussions with the council. We see that from bottom-up policies that have recently been implemented like verge gardens," he says.

Rawlinsons

2020 Construction Cost Data
Available Now



Australia's largest
library of
construction cost
information
for medium and
large projects

An essential guide
for smaller builders,
architects,
consultants and
many others in
construction



An ideal reference
for those involved
in oil and gas,
mining and process
engineering. Ed: 2



Available in Print
and Digital versions

Rawlhouse.com.au

FROM 1980s OFFICE SPACE TO CUTTING-EDGE, SUSTAINABLE, ALL ABILITIES FRIENDLY OFFICE BUILDING: IS IT POSSIBLE?

Investment and property development company Wallum Partners is taking on the task of revamping a 1980s office space in inner Brisbane into a fully refurbished, all ability friendly, sustainable commercial office building.

Wallum Partners has over 35 years of experience in the industry. It has developed projects in the ACT, Queensland, New South Wales and the United States of America. Marcel Russ is working with David Solomon and Simon Heathcote of Wallum Partners on this project.

"Our goal is to convert this highly visible and incredibly iconic riverside commercial office building from an outdated and unloved asset into a sustainable and cutting-edge working environment that will hopefully set the tone for refurbished commercial office spaces in Brisbane and indeed the whole country," Russ said.

"We have a lot of fun working on these types of projects. These projects really allow us to push the envelope. We want to show that every office space has the potential for growth, transformation and a high degree of functionality.

"We're taking inspiration from some of the world's most beautiful and sustainable office spaces. The directors are constantly seeking inspiration from ambitious and cutting-edge projects both domestically and overseas."

The building purchased in an off-market transaction by Wallum Partners in early 2020 is located at 159 Coronation Drive, just minutes outside of the Brisbane CBD. The entire asset consists of two four level buildings with 130 parking spaces and 5,200

square metres of office space. According to Russ, he and the team at Wallum want to upgrade the asset into a leading sustainable and environmentally friendly office space that will not only redefine the benchmark for workability but also embrace the needs of people with all abilities including those with physical challenges.

"There's a lot riding on our success. A lot of people believe it's too difficult to bring 21st century sustainable standards to old buildings. They think it's easier to just knock down an old building down and start again," Russ said.

"We want to show that that's not actually necessary. A lot can be done with older buildings, whether it's an office space or your own home. In fact, many older buildings have extraordinarily good bones. We're really looking forward to seeing the 'before' and 'after' photos of the building. We think a lot of people are going to be pleasantly surprised."

Russ and the team at Wallum have engaged a number of consultants and organisations to help them revitalise the old office space. The project is being backed by Stamford Capital and Quintet Partners Partnership Platform.



"We're currently deciding on an appropriate solar system to improve the building's performance, making upgrades to the air conditioning, lifts, installing carbon sensors, low energy lighting, basement upgrades, painting the building and ensuring water efficiency measures are in place," Russ added.

"We're transforming the landscaping by working with Oculus, world leading landscape designers to deliver a beautiful ground plane around the building. We're also working with Fender Katsalidis, world renowned Architects, to upgrade lobbies, bathrooms, balconies, as well as the building's façade and entrances.

"In addition, we are also incorporating end of trip facilities and investigating the possibility of also adding power stations for electric cars, bikes and scooters. All this will bring the building up to a world class standard making it a most inclusive, thoughtful, productive and inspiring refurbished workspace."

The Wallum Partners team is determined to redefine what is possible in terms of sustainable commercial asset refurbishment.

"Accessibility is a core part of this project. This building was created during a time when accessibility factors weren't considered. We're going to add ramp access, improve layout and placement of fittings and fixtures, and also convert old tea rooms into all abilities bathrooms," Russ said.

For further information, please visit: www.wallumpartners.com.au

VOLVO WITHDRAWS FROM CONEXPO OVER VIRUS CONCERNS

All business areas within the Volvo Group have jointly decided to not attend Conexpo-Con/Agg 2020 due to the outbreak and continuing concerns relating to the Coronavirus Covid-19.

With California joining Washington State and Florida in declaring a state of emergency to contain the spread of the novel Coronavirus Covid-19, the decision was taken to withdraw from the Conexpo

exhibition in Las Vegas, Nevada. This includes all relevant Volvo business areas, Volvo Construction Equipment, Volvo Penta, Volvo Financial Services, Volvo Trucks, Mack Trucks, SDLG and Terex Trucks.

"We are great supporters of Conexpo, and despite being in advanced preparations for this year's event, we believe it is the right thing to do to withdraw at this late stage. Our first

concern is the wellbeing of employees, customers and the wider public," said Melker Jernberg, Executive VP & President of Volvo CE.

"It's very disappointing not to be attending, but our first priority is the health and safety of our employees and others. Given this, it is with reluctance that it has been decided not to participate in this year's show," Melker Jernberg added.



NEW ISO STANDARD: KNX IP SECURE

KNX National Group Australia recently announced as the world's first vendor and application independent security solution for smart buildings, *KNX IP Secure* has been recognised as an international security standard, designated EN ISO 22510.

KNX is already known internationally as the leading technical standard in the smart home and building sector. Since the adoption of the KNX standard as ISO/IEC 14543-3 in 2006 and the release of the Australian and New Zealand Technical Specification SA/SNZ TS ISO/IEC 14543.3 in 2017, the global recognition and acceptance of KNX as an open protocol for smart buildings has achieved substantial growth year on year.

The new ISO standard based on KNX IP Secure was published at the end of November 2019 and was created specifically to cover open data communication for building automation and building management via KNX/IP.

With the growing awareness of cyber threats that smart buildings can be exposed to and the resulting increase in security requirements for building automation, this latest ISO standard highlights the role of KNX as a global technology leader.

Since 2006, the KNX technical standard has been a forerunner in top global and regional standardisation for building automation. During the development of KNX, security has always been a top priority, to the point where experts still considered the standard to be very secure.

"With the ongoing progress in intelligent networking of buildings and infrastructure, including trending topics such as sector coupling, smart grids etc., there is a constantly growing number of data-driven use cases in KNX projects that rely on very sensitive data and require particularly high levels of security," says Franz Kammerl, President of the International KNX Association.

"This is exactly where we start with KNX Secure, in which we expand our already very secure standard with additional security mechanisms to meet the highest IT security demand," he added.

KNX Secure provides double protection, effectively preventing attacks on smart buildings.

Created in 2015, KNX Secure is based on international security algorithms standardised in accordance with ISO 18033-3 and uses recognised encryption in accordance with AES 128 CCM.

KNX Secure essentially consists of two mechanisms: KNX IP Secure that protects the IP communication between the KNX installations by extending the IP protocol in such a way that all transferred telegrams and data are completely encrypted. At the same time, KNX Data Secure effectively protects user data, including data exchanged with the various terminals, against unauthorised access and manipulation by means of encryption and authentication.

Both mechanisms can be combined and used in parallel to achieve maximum security for smart buildings.

For further information on KNX in Australia, please visit:

www.knx.org.au

AUSSIE GMP WATER CART PUMPS CAST IRON VALUE 2", 3" & 4" SEMI TRASH PUMPS HIGH FLOW HIGH PRESSURE



MOVE 2,400 lpm!

Semi Trash Pump with...

- ✓ 3 YEAR WARRANTY
- ✓ FRONT OPENING PORT
- ✓ SILICON CARBIDE SEALS
- ✓ BIG OPEN IMPELLER
- ✓ BARE SHAFT, HYDRAULIC, PETROL OR DIESEL DRIVE



**GMP PUMP DEALERS
NEAR YOU, AUSTRALIA WIDE**

02 8865 3500

Australian Pump Industries
www.aussiepumps.com.au

Aussie Pumps

Mobile Media Blasting - Wet & Dry

- Specialising in Concrete preparation for Carbon Fibre application
- Abrasive & Non Abrasive Blasting
- Paint, rust & contaminant removal from many substrates
- Line marking removal
- Compact machinery for easy access
- Low media usage which means less environmental issues with containment and dust
- Suitable for confined space blasting

Recent Carbon Fibre preparation projects -

- *The Glen Shopping Centre Mt Waverley*
- *161 Collins Street Melbourne*

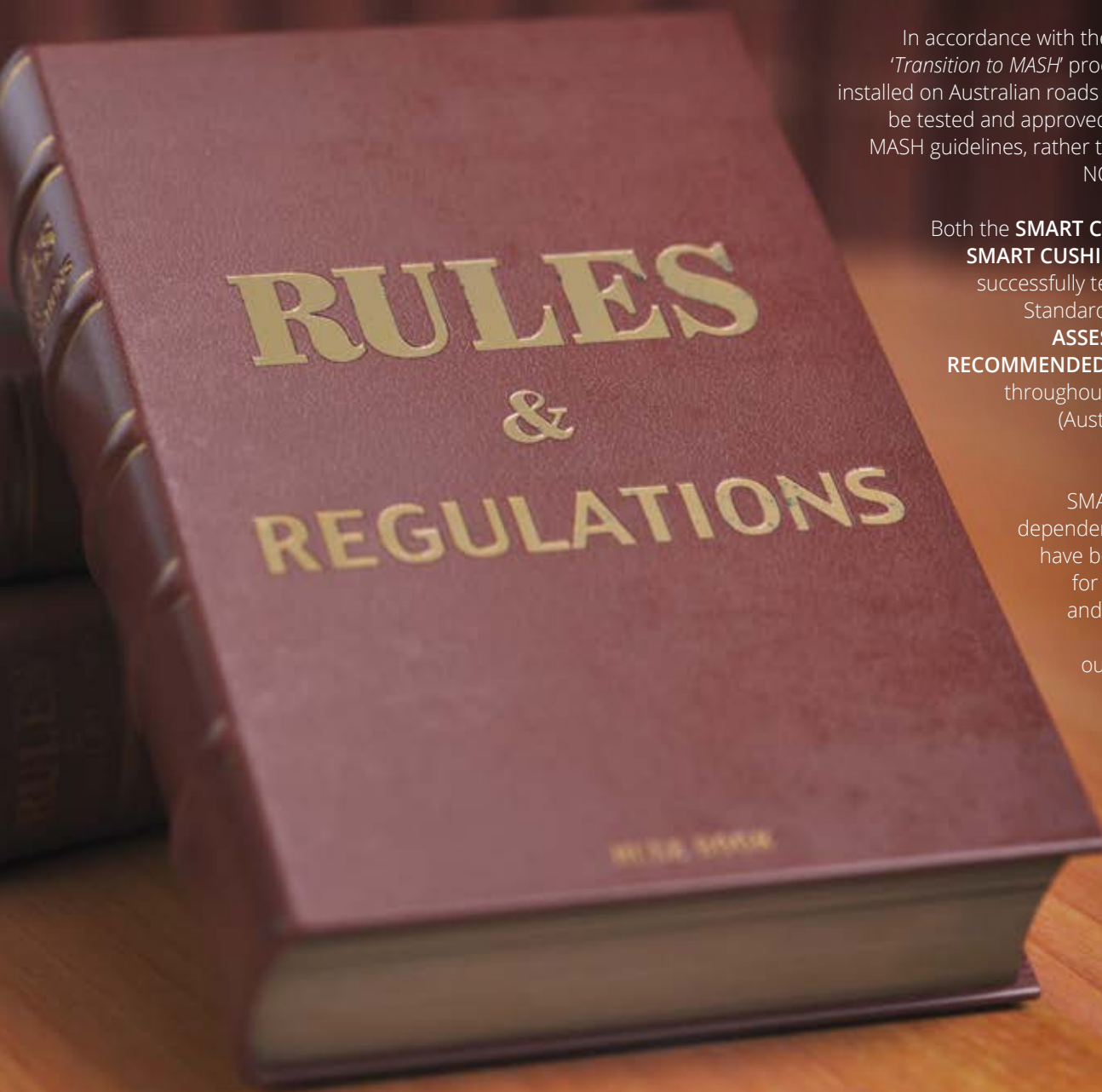
EnviroBlast
Australia

1300 240 337

www.enviroblast.net.au

NEW YEAR... NEW RÜLES

The new rules requiring MASH tested & approved crash cushions came into effect on January 1st, 2020



In accordance with the Austroads / ASBAP 'Transition to MASH' process, crash cushions installed on Australian roads are now required to be tested and approved under the AASHTO MASH guidelines, rather than the superseded NCHRP350 guidelines.

Both the **SMART CUSHION SC100** and **SMART CUSHION SC70** have been successfully tested to MASH-2016 Standards, with both models **ASSESSED, APPROVED & RECOMMENDED FOR ACCEPTANCE** throughout Australia by ASBAP (Austroads Safety Barrier Assessment Panel).

SMART CUSHION speed dependent crash attenuators have been used in the USA for almost two decades and in Australia for over 5 years – delivering outstanding life-saving performance and significant savings on repair costs in many thousands of impacts.

SMART CUSHION

Speed Dependent Crash Attenuators

SMART CUSHION

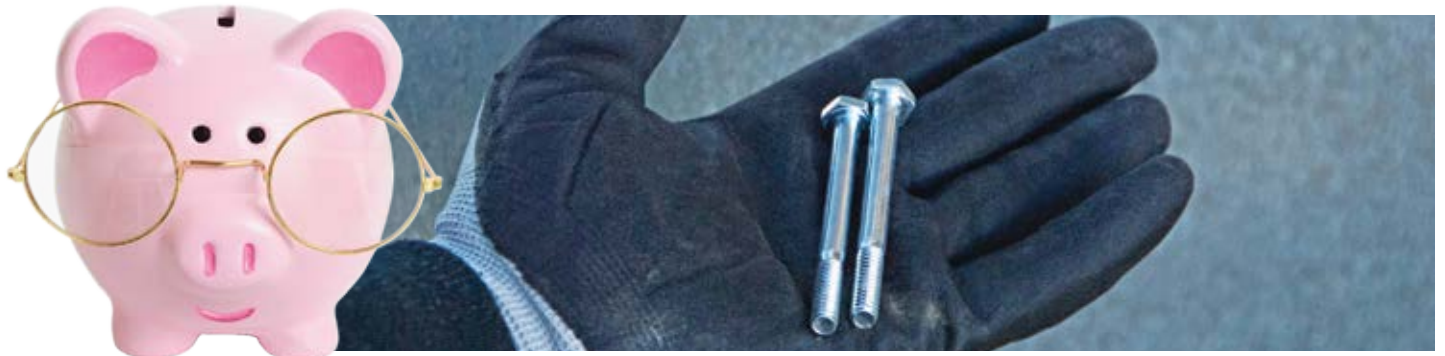
Speed Dependent Crash Attenuators

MASH TESTED & APPROVED



SAVE TIME...

For most impacts up to 100km/h (by vehicles up to 2,270kg) the SMART CUSHION can usually be repaired and reinstated into service in under 60 minutes.



SAVE MONEY...

In 90% of all impacts in Australia, the only spare structural parts needed for repairs are 2 shear pins (COST <\$5). After 59 impacts in Australia, the average cost for each reset was \$169.



SAVE LIVES...

After more than 20 years of successful service internationally and over 5 years successful service in Australia, SMART CUSHION has been directly credited with saving numerous lives and significantly reducing the severity of injuries in literally thousands of impacts.



Ph 02 9631 8833

www.lbaustralia.com.au

The Rise of *Modular Pool*

The use of modular technology is increasing exponentially across all sectors of the construction industry. Pre-manufactured, modular components often offer cost and construction programme savings, while at the same time, offering improved quality control due to the manufacturing process being completed within a controlled environment.

In terms of modular technology, the aquatic industry is no exception.

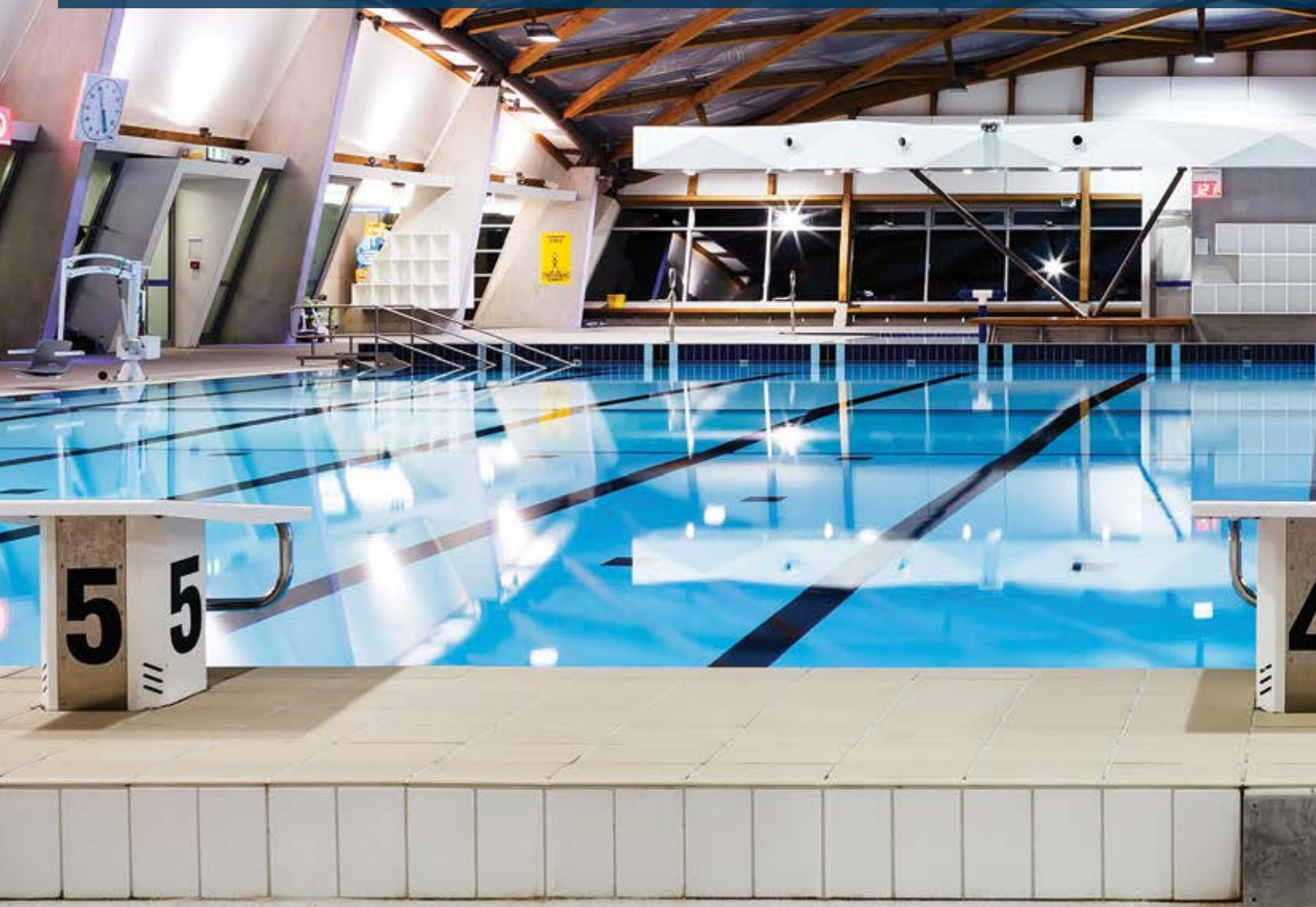
Myrtha Pools have been the market leader in modular technology for swimming pools for decades. Between Australia and New Zealand

there are now in excess of two hundred individual Myrtha Pool installations and literally thousands of Myrtha Pools spread throughout over seventy countries worldwide.

The company was established in 1962 as a family business. After steady growth over the first 15 years, the business acquired the Myrtha technologies German patent in 1977. This technology, which is the process of laminating thin low plasticizer PVC material to stainless steel sheet, was the technology that started a revolution in how commercial modular swimming pools were to be manufactured and installed.

Through steady growth and modernisation of the manufacturing process, based on a CAD/CAM process, Myrtha Pools went on to construct their first major competition pool for the 1987 European Championships. In 1996, Myrtha Pools supplied and installed their first Olympic Games swimming pool, which was a water polo pool at the Atlanta Olympics. These initial high profile installations have been followed by many more pools for both the Olympic Games and FINA World Swimming Championships around the world.

Innovation and product development have been key to the success of Myrtha Pools, and the product that is manufactured today - while





Technology

still similar in many ways - is greatly evolved from the early pools that the company produced.

Today the Myrtha wall panels and gutters are manufactured from AISI441 grade stainless steel that is factory laminated with a hard PVC material, with a shore hardness of A97 and low plasticiser content. All structural supports, including the base frame, are formed from AISI470 Stainless Steel. For maximum quality control, all panels are folded and punched in accordance with the CAD design specific to each project. Welding is excluded from the manufacturing and installation process, due to the risk of localised corrosion in the weld area.

Once prepared and delivered to the site, the materials are assembled on-site by Myrtha trained installers. Every component of a Myrtha Pool is mechanically secured, making for a very fast assembly and a high-quality finish. Water proofing is achieved through a combination of liquid PVC sealing to panel joins and flexible PVC bandages. The floor is finished with a 2.2mm thick reinforced PVC membrane, which is heat welded to the wall panels ensuring a fully watertight pool structure.

The result is a light weight and durable pool structure that is, in most cases, cheaper and faster to construct than traditional concrete construction methods.

Maintenance is minimal - and when maintenance is required, it can often be carried out without the need to empty the pool.

Although best practice would indicate emptying pools every 7 to 10 years, there are many examples of Myrtha Pools that haven't been emptied for 15 to 20 years.

With a structural warranty of 25 years (expected operational life of 50+ years) and a water tight guarantee of 10 years (extended to 15 years when an annual maintenance inspection is carried out) a Myrtha Pool offers a modern alternative to traditional construction methods.



Why Choose Myrtha Pools for your Next Aquatic Project or Refurbishment?

The reason for the success of Myrtha Pools around the world, is due to their ongoing commitment to provide the best possible technology for swimming pool construction. With a fully dedicated R&D department continually testing and improving their technology, Myrtha Pools continue to break new ground in providing cutting edge solutions for both new pools and the refurbishment of existing concrete pools. So why choose Myrtha?

World Class Technology

Myrtha Pools lead the world when it comes to modular aquatic technology. This is proven by our long-standing relationships with FINA where we regularly provide pools (both permanent & temporary) for major events such as the Olympic Games & World Championships.

Reduced Risk

A Myrtha Pool comes as a complete package with very few complementary trades required to complete the installation. The end result of this is a single point of responsibility for the entire pool tank. When combined with a Myrtha Distributor also installing the filtration pipe work then all the risk associated with the pools is combined into one contract. This eliminates

finger pointing as soon as a defect comes up which can happen with other construction methods.

Minimal Maintenance

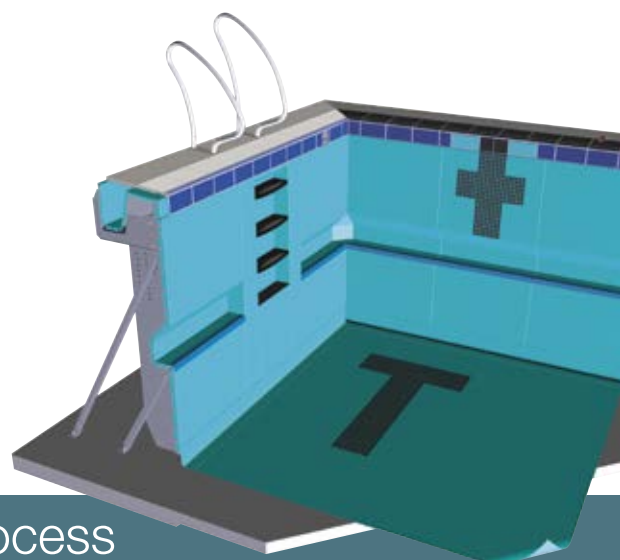
Unlike traditional construction, Myrtha Pools do not require a significant maintenance schedule. Sturdy, built to last and not subject to dimensional variations, a Myrtha structure is not susceptible to cracking or structural deterioration, and is not affected by the aggressive action of chlorinated pool water. A simple annual maintenance check can be carried out without the need for a pool closure, and only takes a few hours per pool. Many maintenance procedures can also be carried out without the need to empty the pool, saving on water costs and substantial shut down periods.

Strong Manufacturer's Warranty

Swimming pools built using Myrtha Technology have a design life of 50+ years, due to the inherent structural integrity and the proven characteristics of the materials employed.



The Myrtha modular pool at MSAC was constructed for the 2006 Commonwealth Games.



The **RenovAction** Installation Process

RenovAction technology from Myrtha Pools provides an option to modernise an existing pool without the expense associated with demolition and reconstruction. The installation process is both simple and fast, and has been developed to minimise the risk of issues or delays occurring during the renovation process.



Rail Installation

The existing surface of the pool is commonly left untouched. Stainless steel rails are aligned and affixed to the pool wall prior to panel installation.

Spacer Installation

High density foam spacers are installed between each rail to avoid any bending of the panel. The spacers allow for a high degree of installation precision. They are glued to the concrete wall and trimmed to panel level using a high temperature electric cable.

Panel Installation

Wall panels are inserted into the pre-aligned rails. Special corner pieces, which are the starting point for the RenovAction installation, are manufactured and installed.

Overflow Gutter Installation

The overflow gutter is installed on steel supports which are anchored to the existing concrete. The gutter is manufactured with Myrtha stainless steel, and is able to be installed at adjustable heights and with a transversal sloping angle.

The advanced technological features of the modular system allow Myrtha to confidently provide one of the best warranties worldwide - a 25-year structural warranty and 10-year watertight guarantee (extended to 15 years with an annual maintenance agreement). Because Myrtha Pools is an international brand with a global reputation to uphold, the warranty sits directly with Myrtha and not with our distributor - ensuring the security of the client regardless of what happens with our distributors.

Fast Installation

Myrtha pools can be built in a very short time, thanks to their pre-engineered design. The components are manufactured according to ISO 9001 quality standards through an automated process and shipped directly to the building site. This facilitates a timely installation process that does not require the use of heavy equipment and significantly reduces the risk of assembly mistakes on the construction site. Because the construction process for a Myrtha pool is very short relative to traditional construction, significant cost savings can be achieved within the construction program.

Light Weight Structure

A Myrtha Pool is constructed using a lightweight Stainless Steel structure. All the transitional load is dispersed through an engineered footing

with no load transferred through the pool floor. This allows for a significant reduction in the complexity of the concrete floor beneath the pool, resulting in significant cost and time savings associated with the concrete works.

Myrtha technology is also ideal for unstable grounds with less direct loading on the ring foundation and adjustment built into the panels to compensate for any ground movement.

Millimetric Precision

A comprehensive design developed with 3D Revit software allows for a highly detailed review of the finished pool structure and better control of the overall material completeness. The tri-dimensional design software aides in the customized manufacturing process and automatically generates a complete, error-free material list. Myrtha pools millimetric precision exceeds F.I.N.A. regulations and competition facility rules.

Fixed Costs

Building a Myrtha pool means fixed purchasing investments and predictable whole-of-life costs. A shorter installation time compared to traditional concrete construction also significantly reduces the risk of cost overruns. In addition, as there is a single contract for the construction of a Myrtha pool, there is also less risk of cost variations due to conflicts between trades.

Also, unlike traditional construction, Myrtha pools do not require a significant maintenance schedule. In the event of a maintenance closure, the time frame associated with these works is generally significantly less than traditional construction methods.

Refurbishment using Myrtha

Myrtha Pools technology could provide the answer to local councils looking for cost effective options to save the many memorial swimming pools across Australia. RenovAction technology by Myrtha Pools provides an option to modernise an existing pool without the expense associated with demolition and reconstruction.

Memorial swimming pools are an iconic feature of most councils' aquatic infrastructure. While in many cases these pools are structurally sound, they often have issues with leaking or outdated circulation that no longer meets health regulations.

In the past, this has left Councils with the choice of either repairing the pool structure and internal finishes (which in most cases is only a short-term solution) or replacing the pool with a completely new structure.

The Myrtha Pools RenovAction technology, offers an exciting alternative to traditional short term repairs or complete replacement.



Panel Sealing

Once installed, the entire structure is waterproofed with a combination of semi-rigid PVC profiles and a special Myrtha sealant, which is applied to the joints of the wall panels, guaranteeing a perfect weld on the entire surface.

Joint Protection

Reinforced PVC tape is welded to the gutter joints to ensure additional waterproofing.

Floor Covering with Reinforced PVC Membrane

The floor is lined with a special reinforced PVC membrane. The membrane is supplied in rolls which are hot welded together at the seams. The wall panels and the floor are joined together by a PVC profile, which is also hot-welded to the walls and the floor.

Finish Installation

Ceramic tiles are applied on the top of the Myrtha surface for a clean and elegant finish. Adhesion of tiles to a Myrtha stainless steel surface is much easier and safer than to a concrete surface, as there is no possibility of water penetration beneath the tiled surface.



From above, the pools at the Marion Aquatic Centre in suburban Adelaide would appear to the untrained eye, to be no different to any other large competition pool. The view from below ground (pictured left) shows the pool's engineered stainless steel panels and supports.



Myrtha Pools patented and exclusive RenovAction technology has been specifically developed for the refurbishment and modernisation of existing concrete pools. RenovAction technology utilises a modular Stainless Steel panel system incorporating three main items – the pool walls, the pool floor and the overflow gutter. The pool walls are modular panels of AISI 441 grade stainless steel, laminated at 300 degrees with a hard PVC surface on the inner swimming pool face. The lamination process permanently bonds the PVC to the steel and forms a product with the strength and integrity to be mechanically processed and bent in excess of 180 degrees without affecting the integrity of the PVC membrane. The panels are attached to the existing pool walls by anchor clamps and expansion screws.

As the pool floor is not subject to the same stresses as the walls, it is more economical and practical to use a specially engineered reinforced PVC membrane with high density and tensile strength. The membrane is supplied in rolls and heat welded on site to form a continuous watertight system from pool floor to walls.

The overflow gutter is formed using the same AISI 441 grade stainless steel panel laminated with hard PVC. It is folded to form a modular 'wet deck' gutter system, complete with ABS channel grating. This gutter is installed by means of anchor clamps and expansion screws onto an existing concrete pool wall which has been cut and prepared to the appropriate profile with the surrounding concourse, then formed up to the back of the gutter to provide a seamless 'wet deck' finish to the pools edge.

RenovAction technology by Myrtha Pools offers a cost effective, yet durable long-term solution to refurbishment of existing concrete swimming pools. The installation process is extremely quick when compared to a traditional refurbishment or replacement, and delivers a high quality result thanks to the prefabricated nature and the fact that the system is manufactured in a controlled environment under an ISO 9001 quality assured certification process.

Whole-of-Life Costs

One of the key advantages of the Myrtha Pools system is the very low whole-of-life costs that are associated with a Myrtha Pool relative to traditional construction. This is in part due to strong warranty terms that guarantee if an issue was to arise with the product within the warranty period, then this work is most likely going to be covered under warranty.



Australia's first Myrtha modular pool was constructed in Perth for the 1998 FINA World Championships.

The structure of a Myrtha Pool, while under guarantee for 25 years, has an anticipated life of 50+ years under normal aquatic environments. There is very little maintenance required with the steel structure of the pool during this time.

The waterproofing system within the pool structure (PVC membrane) has an expected life expectancy of 20 years, although there are many cases around the world of Myrtha pools more than 20 years old which still have their original membrane in use.

Due to the fact that there are only minimal amount ceramic tiles used in a Myrtha Pool (in some cases no ceramics at all), and that we recommend the use of an epoxy grout system, there is only minimal maintenance required to the ceramic surfaces on a Myrtha Pool.

The largest maintenance exercise with a Myrtha pool is the replacement of the PVC membrane. In order for this membrane to be replaced, the pool needs to be emptied and all existing membrane removed. The time-frame associated with this task varies depending on the size and design of the pool, but for a typical 50m pool this is expected to take 4 weeks from closure of the pool to re-opening again. The end result of this exercise is a near new appearance to the swimming pool and a renewed watertight guarantee.

Prince Alfred Park, Sydney





For more information about the whole-of-life costs for a Myrtha Pool, please contact a Myrtha representative.

Reduced Carbon Footprint

In an effort to lower their impact on Climate Change, Governments around the world are looking to reduce their CO₂ emissions. A Myrtha Pool offers a significantly lower carbon footprint than traditional construction and the majority of materials used in the construction of a Myrtha pool are easily recyclable.

Myrtha Pools commissioned Australian engineering company ACOR Consultants to compare the energy used in building a Myrtha Pool versus a traditional concrete tank. Such quantity of energy is expressed as the 'Carbon Footprint', that is the quantity of CO₂ which corresponds to the energy necessary for the production of the materials used.

While the savings on emissions obviously depend on the project's dimension and shape(s), using the classic example of competition pools measuring 25x25x2 m and 50x25x2 m, the carbon emissions generated as part of the Myrtha pool's construction are approximately 49% and 53% less than a traditional concrete pool. There are also significant environmental benefits in the reduction of water consumption during the build.

Myrtha Pools are also currently the only pool manufacturer to achieve LEED certification.

For further information, please visit:
www.myrthapools.com



FROM TOP:
Hilton Hotel, Brisbane: Myrtha modular technology is ideal for rooftop pools.
Wet 'n Wild, Sydney: Myrtha modular technology allows for a wide variety of pool designs.
Collingwood Football Club Training Facility, Melbourne

Comparative analysis on pool with dimensions: **25x25x2 m**

Quantity of material		Myrtha	Concrete
Concrete	[kg]	123.570	277.328
Concrete reinforcing steel	[kg]	8.982	32.552
Stainless steel (pools walls, buttress, gutters)	[kg]	8.890	-
Adhesive for tiles	[kg]	94	3.329
Tiles	[kg]	720	13.307
Epoxy joint filler	[kg]	61	2.154
Polyester resin for the gutter	[kg]	-	102
Hard PVC sheet for the walls Myrtha	[kg]	186	-
Reinforced PVC floor membrane	[kg]	1.188	-
Adhesive water based solvent	[kg]	10	-
Formwork	[kg]	-	521

Total embodied energy		Myrtha	Concrete
Concrete	1.17 [MJ/kg]	144.577 [MJ]	324.474 [MJ]
Concrete reinforcing steel	24.60 [MJ]	220.958 [MJ]	800.780 [MJ]
Stainless steel (pools walls, buttress, gutters)	56.70 [MJ]	504.063 [MJ]	- [MJ]
Adhesive for tiles	87.00 [MJ]	8.178 [MJ]	289.623 [MJ]
Tiles	9.00 [MJ]	6.480 [MJ]	119.763 [MJ]
Epoxy joint filler	139.30 [MJ]	8.498 [MJ]	300.053 [MJ]
Polyester resin for the gutter	139.30 [MJ]	- [MJ]	14.209 [MJ]
hard PVC sheet for the walls Myrtha	68.60 [MJ]	12.760 [MJ]	- [MJ]
Reinforced PVC floor membrane	68.60 [MJ]	81.497 [MJ]	- [MJ]
Adhesive water based solvent	87.00 [MJ]	870 [MJ]	- [MJ]
Formwork	165.00 [MJ]	- [MJ]	85.965 [MJ]

		Myrtha	Concrete
TRANSPORT	[MJ]	84.315 [MJ]	161.469 [MJ]
TOTAL EMBODIED ENERGY	[MJ]	1,072.196 [MJ]	2,096.336 [MJ]
GREENHOUSE GAS EMISSIONS	[kg CO ₂]	105.075 [kg CO ₂]	205.441 [kg CO ₂]
REDUCTION IN CO₂ EMISSIONS		49%	

Comparative analysis on pool with dimensions: **50x25x2 m**

Quantity of material		Myrtha	Concrete
Concrete	[kg]	558.576	1,222.387
Concrete reinforcing steel	[kg]	17.116	60.316
Stainless steel (pools walls, buttress, gutters)	[kg]	13.335	-
Adhesive for tiles	[kg]	141	6.201
Tiles	[kg]	1,080	24.789
Epoxy joint filler	[kg]	97	4.282
Polyester resin for the gutter	[kg]	-	153
Hard PVC sheet for the walls Myrtha	[kg]	279	-
Reinforced PVC floor membrane	[kg]	2,375	-
Adhesive water based solvent	[kg]	14	-
Formwork	[kg]	-	773

Total embodied energy		Myrtha	Concrete
Concrete	1.17 [MJ/kg]	653.534 [MJ]	1,430.193 [MJ]
Concrete reinforcing steel	24.60 [MJ]	421.041 [MJ]	1,483.764 [MJ]
Stainless steel (pools walls, buttress, gutters)	56.70 [MJ]	756.095 [MJ]	- [MJ]
Adhesive for tiles	87.00 [MJ]	12.246 [MJ]	539.510 [MJ]
Tiles	9.00 [MJ]	9.720 [MJ]	223.103 [MJ]
Epoxy joint filler	139.30 [MJ]	13.540 [MJ]	596.510 [MJ]
Polyester resin for the gutter	139.30 [MJ]	- [MJ]	21.313 [MJ]
hard PVC sheet for the walls Myrtha	68.60 [MJ]	19.162 [MJ]	- [MJ]
Reinforced PVC floor membrane	68.60 [MJ]	162.925 [MJ]	- [MJ]
Adhesive water based solvent	87.00 [MJ]	1.240 [MJ]	- [MJ]
Formwork	165.00 [MJ]	- [MJ]	127.463 [MJ]

		Myrtha	Concrete
TRANSPORT	[MJ]	153.348 [MJ]	296.753 [MJ]
TOTAL EMBODIED ENERGY	[MJ]	2,202.851 [MJ]	4,718.608 [MJ]
GREENHOUSE GAS EMISSIONS	[kg CO ₂]	215.879 [kg CO ₂]	462.424 [kg CO ₂]
REDUCTION IN CO₂ EMISSIONS		53%	



Gas bill shock triggers revolution in energy-efficient aquatic centre design

by Poppy Johnston, *The Fifth Estate* (www.thefifthestate.com.au)

Poppy Johnston, journalist with *The Fifth Estate*, has been looking into the impact of rising energy costs on council owned and operated aquatic centres - and what can be done to help improve energy efficiency and reduce the environmental impact and operating costs of these critical public infrastructure assets.

As Australian councils struggle to pay sky-high gas bills to heat and cool their aquatic centres, pressure is building to find cheaper and less carbon-intensive ways to keep these treasured community facilities open.

Australia might be a leader on building energy performance, but one niche building type appears to have largely fallen through the cracks: the local aquatic centre.

According to experts, historically cheap gas prices and the absence of a carbon tax has spawned a fleet of energy-hungry aquatic facilities across the country. These facilities, which typically consist of indoor pools and other functions such as gyms and cafes, can consume up to seven times more energy per floor area than the average commercial office building.

This could soon change, with councils now facing enormous bills thanks to rising gas prices that aren't expected to decline. One source from a metropolitan Victorian council told *The Fifth Estate* that the council's energy bill had increased by more than 60 per cent compared with 2014-2017 averages.

Fortunately, there's growing evidence to suggest it's possible to design and retrofit aquatic centres to dramatically improve energy efficiency.

Northern Environmental Design director Jonathan Duverge, whose PhD focused on energy efficiency in aquatic centres, says Europe leads the way on aquatic centre design.

"Higher energy costs have prompted the design of better performing buildings," he explains, "with, for example, minimal use of glass."

"It's very rare to see an aquatic centre with floor-to-ceiling glass surrounding it... Europe is really looking at the design," he said.

By contrast, large swathes of glazing are common in Australian

aquatic centres. While it might look attractive, sky lights and floor-to-ceiling glazing attracts condensation. If not managed correctly, glare can also be dangerous inside an aquatic centre.

Steel framing is also common in Australian aquatic centres, creating thermal bridges and attracting condensation and rust.

Duverge says that in Australia it's rare for designers to consider how much energy the facility is going to use – it's all about making them "tall and shiny".

"It doesn't help that fully-glazed domes are recognised by the industry as tender-winning designs," he adds.

He says also people don't understand the effect of evaporation and heat loss that occurs in an indoor pool.

"They treat it as an office building."

He says the evaporative effect has a big impact on energy consumption, but is rarely taken into consideration.

"I think people just try to do calculations in terms of heating but neglect the effect of evaporation. That's not really accurate."

Another common problem is that aquatic centre staff are not trained or don't understand how HVAC systems work, opening windows and doors when it becomes too hot rather than adjusting the HVAC.

Duverge is seeing change in the industry as councils start to feel the financial and ethical pressure, with many declaring a climate emergency and looking for opportunities to decarbonise their operations.

CAPTURING HEAT ENERGY

For RMIT senior industry fellow Alan Pears, an energy efficiency expert who's been looking into the energy performance of aquatic centres since the 1990s, the key issue for aquatic centres is that they flush out enormous amounts of heat energy that is costly to produce.

Most of the thermal energy going into an aquatic centre is used to heat the air around the pool, followed by the pool water itself which is heated to around 27-29 degrees Celsius. The warm water from the pool evaporates, absorbing large amounts of energy, producing water vapour and making the pool facility hot and steamy.

Elite Thermal Covers keep everyone happy.



**Save your Centre
thousands on the cost of:**

- Heating
- Water & chemicals
- Building Maintenance



1300 136 696
www.poolcovers.com.au

Air extraction fans are required to suck out the hot, humid air and the energy it contains at an astounding rate. Air equivalent to 4 to 10 times the volume of the building is exhausted and replaced by outdoor air every hour.

The good news is there's a tried and tested technology that can capture and upgrade this escaping heat energy for another use – the heat pump.

HOW IT WORKS

A heat pump is an electrical device that extracts heat from one place and transfers it to another. Refrigerators and air conditioners are both heat pumps but only for cooling. The heat pump cycle is fully reversible, and can provide heating in winter and cooling in summer.

Unlike traditional heating equipment that only generates heat, the pumps extract heat from the environment – as per the laws of thermodynamics, where even cold air, heat or other materials actually contains a lot of heat energy.

In an aquatic centre, a heat pump is particularly attractive as it is able to capture the large amounts of waste heat energy from humid exhaust air and “pump” it back into the pool, all while using a relatively small amount of electricity.

This all ends up being far cheaper because, although the price per unit of energy is more than gas, a heat pump is much more efficient than a gas boiler in this kind of setting.

A heat pump's energy efficiency is measured by its Coefficient of Performance (CoP), which is the amount of heating or cooling provided by a heating or cooling unit to the energy consumed by the system. A top-of-the-line heat pump can have a CoP as high as 9.5 to 11 (950-1100 per cent), compared with traditional gas boilers that have an expected efficiency of around 50-75 per cent.

The efficiency of heat pumps increases again if used as an integrated building-wide system for both heating and cooling. This makes the technology even more attractive for aquatic centres because different spaces and pools are heated at different temperatures. For example, a gym needs to be at a comfortable temperature for exercising, while a pool in the same centre needs to be about 30 degrees.

Pears says that once you start running the numbers, heat pumps “look pretty good,” with lower maintenance and running costs offsetting the higher capital costs over time.

COUNCILS TURN TO AMMONIA HEAT PUMPS

SmartConsult renewable energy consultant Derek Harbison believes low-charge ammonia heat pumps are a good option for those aquatic centres considering the shift away from gas.

Harbison, who has been acting as an intermediary between councils and the refrigeration industry, says the technology is proven and already used in other building types in Australia, such as commercial buildings and cold stores. A key benefit of these systems is that they rely on a “natural” refrigerant that doesn't contribute to global warming.

Critically, he says a fully integrated and optimised system has the potential to make an aquatic centre 80 per cent more efficient when compared with a comparable gas system.

Harbison has been approached by multiple councils from Victoria and NSW interested in alternatives to gas for heating and cooling their aquatic centres.

This moveable pool cover storage system doubles as attractive seating around the pool deck.

ESD made easy

Uncovering the true value of pool covers

The key purpose of Environmentally Sustainable Design (ESD) is to **reduce impacts** in both the **construction** and **use** of buildings, structures and facilities on the natural environment, whilst at the same time improving comfort and amenity for the inhabitants and/or those using the facilities.

With that in mind, it's also clear that when it comes to 'best practice' ESD, indoor pools and large aquatic centres can present some of the largest challenges in terms of design, construction and ongoing operation.

From energy consumption; water consumption; and reducing emissions, through to chemical use; public and staff health & safety requirements; and maintenance requirements (in what can be an extremely harsh and corrosive environment) – 'ticking all of the ESD boxes', whilst at the same time providing a facility which is fun, safe and financially viable, is no easy task.

Importantly, there is one easy, highly cost-effective and proven method of significantly reducing the environmental impact of both new and existing pools and aquatic centres – install a pool cover.

Bernard Schenk, Commercial Sales Manager with leading commercial pool equipment specialists Elite Pool Covers, explained:

"Installing a good quality commercial pool cover can not only significantly reduce water loss through evaporation, it can also, quite literally, end up saving the facility owner tens (or even hundreds) of thousands of dollars in operating and maintenance costs."

"From reduced energy bills for water heating, through to the extended painting and maintenance intervals that can result from reducing the amount of condensation being generated in indoor aquatic facilities, a commercial pool cover can not only significantly boost a facility's ESD credentials, it's also an excellent financial investment," he added.

Alarming, despite these many ESD and cost benefits, around 50% of commercial pools still don't have pool covers fitted, with pool owners/operators citing reasons including capital cost, limited space for covers, no staff available to operate covers, etc. Indeed, even where a pool cover had been included as part of the pool construction or refurbishment project, the pool cover is often the first item to 'get cut' in an attempt to reduce costs if the project has run over time and/or over budget.

Considering that the average 'payback' of the capital cost of a commercial pool blanket in direct water and energy savings is around 18 months, there's a fair argument that pool blankets should no longer be considered as an 'optional extra' – rather as a mandatory inclusion.

As for the available floor space argument, that too is no longer an issue – thanks to a number of innovative new designs from Elite Pool Covers.

"Massive increases in the cost of land, has meant that buildings are getting smaller and facilities are becoming more compact," Bernard Schenk explained.



Now you see it – now you don't. This built-in pool cover system makes the most of valuable space by storing the pool cover under the pool deck when it's not in use.

"The square metre value of floorspace is significantly higher than it was 10 years ago and it continues to go up – and facility owners don't want to spend that money to simply provide space to store a pool cover when it's not on the pool".

"With that in mind, we've developed a range of solutions to overcome that issue, including built-in systems which are concealed in the pool deck and movable systems which double as seating around the pool deck," he said.

"These options, combined with the many ESD and financial benefits, mean that there really is no excuse for not including a pool cover as part of your pool design."

"Most importantly, like most things, pre-planning delivers the best results," he added. "Including a pool cover in the design of a new facility or in refurbishment plans for an existing facility enables us to design and deliver the most efficient solution – in terms of both environmental performance, aesthetics and usability."

For further information, please contact Elite Pool Covers on T: 1300 136 696 or visit the website: www.poolcovers.com.au

Capability

translates to a construction partner you can always count on

PYMBLE LADIES COLLEGE

Get the full list of completed projects at our website

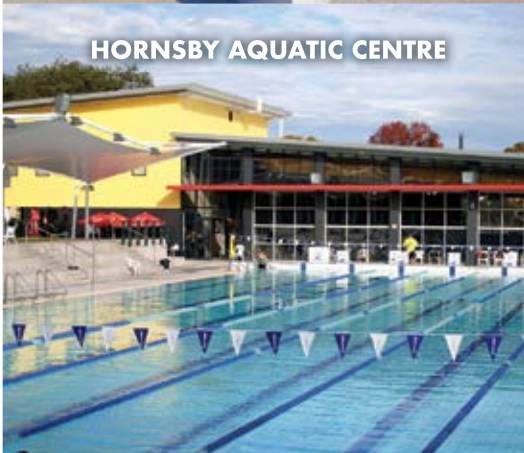
GOLD COAST AQUATIC CENTRE



ROYAL SYDNEY GOLF CLUB



HORNSBY AQUATIC CENTRE



Australia's most capable
and experienced pool
builder remains the
benchmark all others
are measured by

**CRYSTAL
POOLS** .COM.AU

QUALITY WITHOUT COMPROMISE SINCE 1957

SYDNEY CRICKET GROUND



ANDREW BOY CHARLTON MANLY



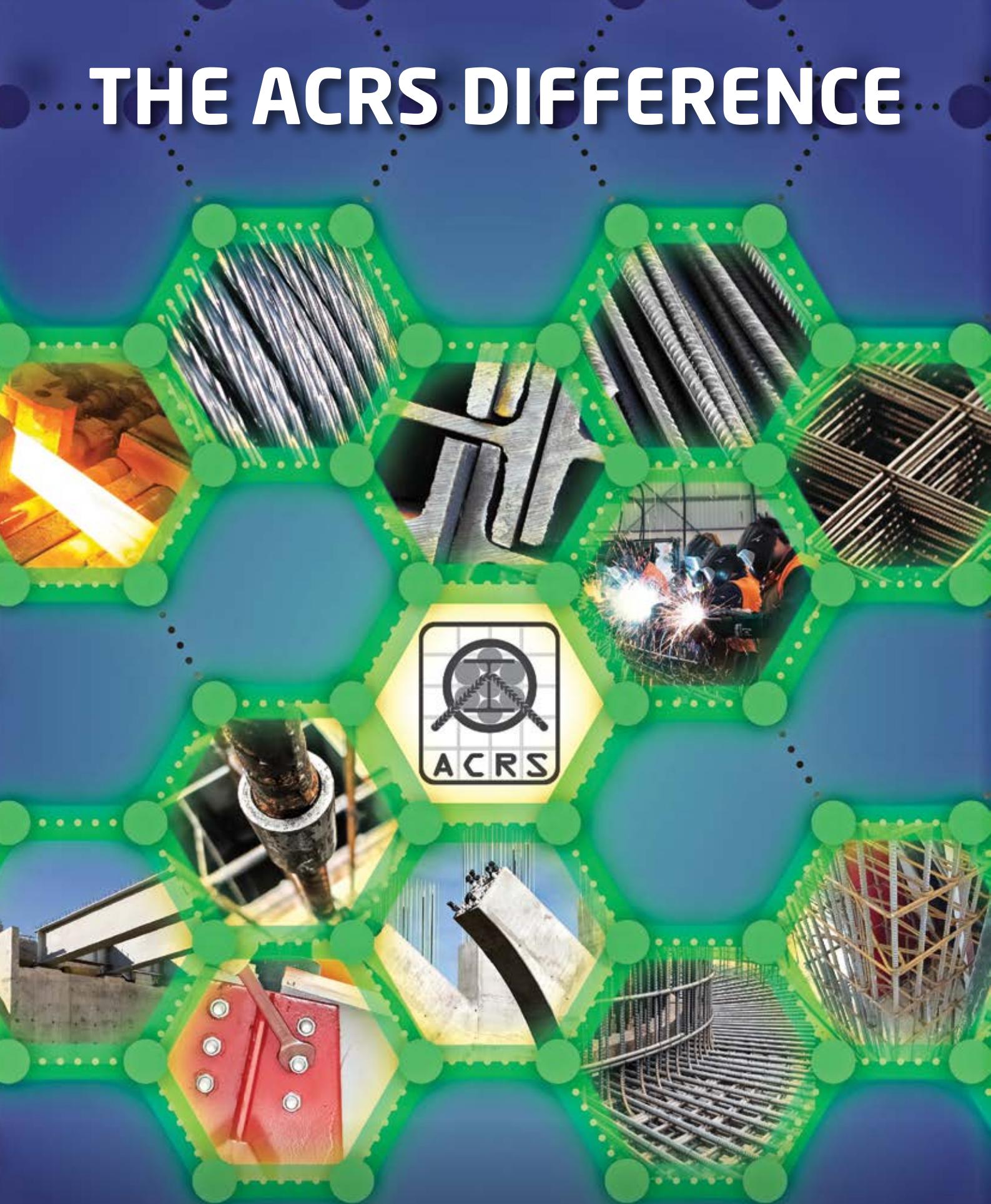
2018 COMMONWEALTH GAMES
POOL CONTRACTOR



ANGELO ANETIS AQUATIC CENTRE



THE ACRS DIFFERENCE

A collage of construction-related images arranged in a hexagonal pattern. The central hexagon features the ACRS logo, which consists of a stylized 'A' and 'C' forming a circle around a central point, with the letters 'ACRS' below it. Surrounding this central logo are several other hexagonal images: top-left shows a bundle of rebar; top-center shows a large steel beam; top-right shows a close-up of rebar; middle-right shows two workers welding a joint, with bright sparks visible; bottom-right shows a large, curved concrete structure; bottom-center shows a close-up of a rebar joint; bottom-left shows a red metal plate with bolts; and middle-left shows a close-up of a rebar joint. The entire collage is set against a dark blue background with a pattern of small white dots.

With the increasing number of different types of certification available in Australia and New Zealand, it has never been more important for industry to recognise the differences between the types of certifications and schemes available, and the different levels of assurance provided by the certificates issued by those schemes.

In this special feature, Philp Sanders, CEO of ACRS provides a valuable insight into recognising these differences, what the limitations are, and the risks of automatic acceptance of certificates offered by different suppliers.

In this special feature, Philp Sanders, CEO of ACRS provides a valuable insight into recognising these differences, what the limitations are, and the risks of automatic acceptance of certificates offered by different suppliers.

Certification types, certification differences, and your risks

by Philip Sanders, CEO, ACRS



As focus continues to intensify on non-conforming building materials, ACRS is increasingly asked questions about what certification does and which certificates can be relied upon. Unfortunately, these questions are sometimes only asked when it has been discovered that the materials delivered to, or worse still, installed on the project, have not met expectations.

The first thing to recognise is that there are several different types of certification.

The second, that in each type of certification there are the different levels available, offering different levels of product assurance to the end user.

These differences can be difficult to see at first look. For example, one certification level commonly offered, is "Type 5 certification". This type comes from ISO 17067 which is a guideline document (NOTE: not a Standard) offering possible options to certification providers. Unfortunately, this is often presented as being the highest level of certification. What's more, many also assume that any "Type 5" certification will deliver as well as any other.

This is, simply, incorrect.

As ISO 17067 itself describes, for "Type 5 certification" there are (only) four certification activities listed and further, it states "...the extent to which the four surveillance activities are conducted may be varied for a given situation as defined in the scheme."

Put simply, that means different schemes assessing the same product and process may:

- Do different things
- To different technical levels,
- Using different levels of expertise
- With different levels of rigour...

... and still legitimately issue certificates described as "Type 5" certification that, on the face of it, look the same, leaving certificate users who do not understand the differences potentially risking use of non-conforming materials.

"The only way to be truly sure that the materials being used conform fully with the appropriate Australian and New Zealand Standards and are fit for purpose, is through independent, expert third party certification with ongoing validation."

Below, I've listed some of the most common questions ACRS is asked by specifiers and users in relation to recognising these differences, what the limitations are, and the risks of automatic acceptance of certificates offered by different suppliers.

Why and How to Use the ACRS Steel Certification Scheme for Conformity Assurance for Infrastructure Construction Projects



Is ACRS the only JAS-ANZ accredited product certification body for steel to AS/NZS Standards?

Absolutely not. JAS-ANZ accredits many product certification bodies, and several of these are accredited to provide product certification to AS/NZS steel Standards.

So, can I accept any other JAS-ANZ accredited product certification body to AS/NZ Standards?

Yes, of course. However, as I've highlighted in previous articles, it is critical to remember "The extent to which ... surveillance activities are conducted may be varied for a given situation as defined in the [individual] scheme."

What's the catch?

JAS-ANZ accreditation of product certification schemes and certifiers does not mean that JAS-ANZ is saying all schemes do the same thing,

and provide similar outcomes - even if JAS-ANZ accredits them to certify the same products to the same Standards.

The potential catch, therefore, is that whilst you can choose to accept any scheme you wish, you cannot say that any JAS-ANZ accredited product certification scheme, by definition, provides the same level of assurance as any other. Again, as stated previously, different schemes assessing the same product and process may: do different things, to different technical levels, using different levels of expertise, with different levels of rigour.

So, on the face of it, while various schemes and certificates might look very similar, they may offer very different levels of assurance.

With that in mind, as a specifier, or user of steel product certification, you must be confident that the individual scheme and its certification does what you expect, and you should always check what schemes and certificates are acceptable to the client - especially in government work.

What is ACRS and why is it different?

ACRS specialist certification gives the highest level of steel certification available in Australia and New Zealand. Since 2001, ACRS has provided assessment and verification of manufacturers and suppliers using the 2-stage assurance process adopted in UK and modified for Australian and New Zealand Standards and practices.

I've checked ACRS scheme and it stresses two stages of certification are necessary, not just one. Why should I require both stages?

A lot can happen before steel arrives on your project. So, you should call up both stages to ensure you have certification covering more than simply steel manufacture.

One of the potential drawbacks of reliance on a single stage scheme, particularly if it is only for the mill of manufacture, is that such schemes usually cannot take into account what happens to the steel between leaving the mill and being dispatched to site. ACRS was designed to do more.

Quality (that is "compliant") structures need conforming steels. Steel can be processed, fabricated, and welded perfectly, but if the steel used is "wrong", the structure is wrong.

That's why you need to specify steel certification that independently verifies the steel used conforms consistently to the right standards and is fully traceable through the supply chain from the steel mills used to the welded section fabricator with no substitutions, or mixing of sources. Only ACRS 2-stage certification system gives you chain of custody already included as part of steel product certification.

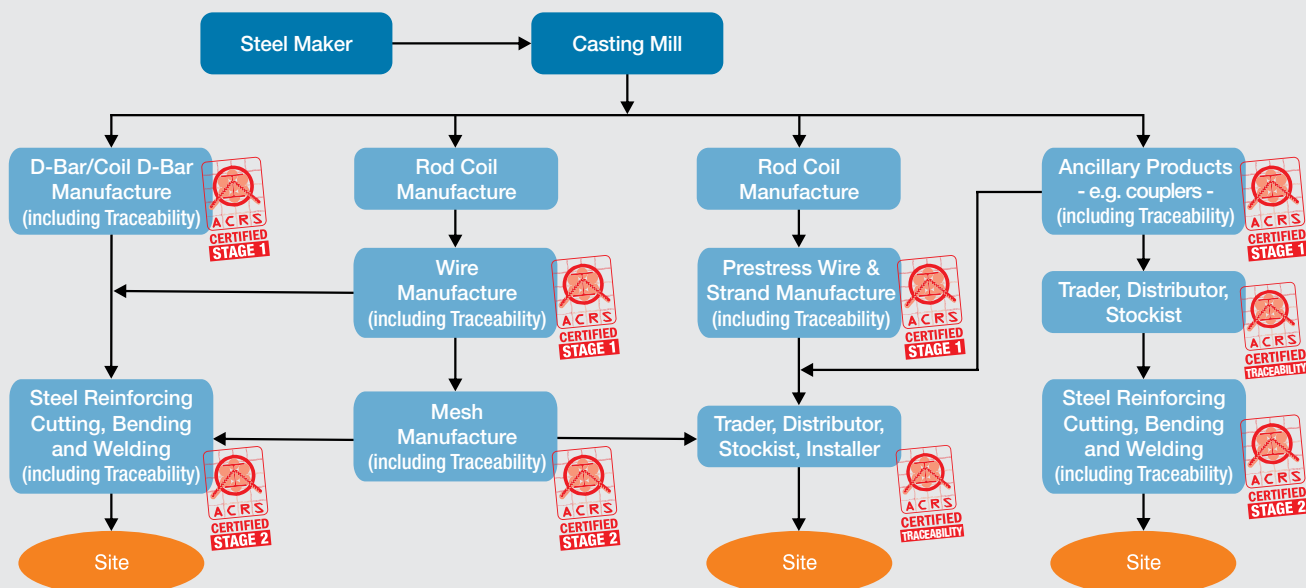
If you don't use ACRS certification together with any other certifications you may choose to use (e.g. ISO 9001 quality systems certification, ISO 3834 welding systems certification, and general steelwork fabricator certification) you

will need to actively sign-off the conformity of all the steel used for every delivery on your project. This is not an easy task for anyone, and it can come with real risks you won't be able to verify all the steel to Standards.

So, choose ACRS Stage 1 steel manufacture certification and ACRS Stage 2 steel welded section certification. Simply specifying ACRS 2-stage certification makes demonstrating steel conformity easy for the steel suppliers, easy for the steel fabricators, and easy for you.



ACRS Reinforcing Steel Chain of Certification



For reinforcing steels, ACRS certifies BOTH the steel mill that manufactures the steel AND the steel reinforcement processor and mesh supplier. Verification of the outputs of both these supply streams is essential for any steel reinforcing materials claiming to conform with the Standards.



Can I use welded section fabricator or rebar processor certification by another scheme if the supplier assures me they will only use ACRS "Stage 1" manufactured steel?

As above, you can choose a scheme other than ACRS. However, ACRS does not cover material transformed by other "Stage 2" certifiers because ACRS has not assessed and validated the fabricated product for both source material and what has been done during processing or welded fabrication, nor has ACRS reviewed materials traceability between the steel mill and the processor, or fabricator.

ACRS has had to disappoint several enquirers recently. Some discovered that despite assurances from the supplier, material was not even ACRS stage 1 certified and was unable to be verified to the steel Standard. Others have found that welded section fabricators and mesh manufacturers could not demonstrate that even where ACRS Stage 1 materials were used, that the steel was still conforming to Standards after fabrication, and were having problems with acceptance.

You need to be sure your steel procurement policies and specifications reference both ACRS steel manufacture certification (ACRS Stage 1) and then either ACRS rebar processing certification or ACRS structural steel welded section certification (ACRS Stage 2) to properly manage your risks of receiving non-conforming steel.



HOW DO I SPECIFY ACRS CERTIFIED STEELS?

The easiest way to manage and minimise the risk of non-conforming construction steels, is to specify ACRS certified steels.

FOR STRUCTURAL STEELS

"Structural steels shall comply with AS 1074, AS 1442, AS 1579, AS/NZS 1163, AS/NZS 1594, AS/NZS 3678, AS/NZS 3679.1, or AS/NZS 3679.2, as appropriate.

Structural bolts shall comply with AS/NZS 1252.

Where applicable, materials shall be fabricated in accordance with the "Fabrication" requirements in Section 14 of AS 4100 or Appendix G of AS 5100.6, or AS/NZS 2327, or NZS 3404, and the requirements of AS/NZS 5131.

Acceptable manufacturers of structural steels, structural bolts, and the fabricators of structural welded sections must hold a valid certificate of approval issued by the Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS), or to such other accredited product certification system as shall be demonstrated by the supplier to be directly equivalent in scope and technical rigour to ACRS and approved as such in writing by the specifier.

Evidence of the supplier's compliance with this clause must be obtained when contract bids are received."

FOR STEEL REINFORCING MATERIALS

"Steel reinforcing and steel prestressing materials for concrete shall comply with AS/NZS 4671 or AS/NZS 4672, respectively.

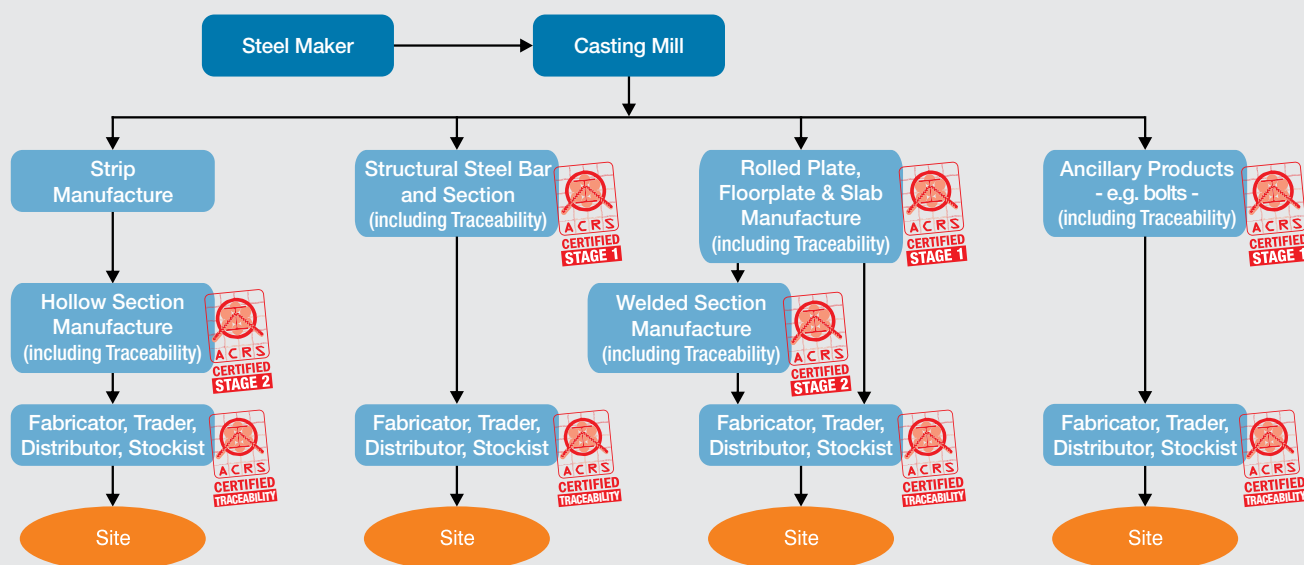
Where applicable, materials shall be cut and bent in accordance with the requirements of the "Material and Structural Requirements for Reinforcing Steel" clauses in AS 3600 or AS 5100.5, or the "Reinforcement" clauses of NZS 3109.

Reinforcing couplers shall comply with RMS specification RMS SF2013/184115 Approval of Mechanical Reinforcing Bar Splices, or NZTA SP/M/022 Bridge Manual (technical approval sections), as specified.

Acceptable manufacturers and processors of steel prestressing and steel reinforcing materials, including both manufacture and application of reinforcing couplers, must hold a valid certificate of approval issued by the Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS), or to such other accredited product certification system as shall be demonstrated by the supplier to be directly equivalent in scope and technical rigour to ACRS and approved as such in writing by the specifier.

Evidence of the supplier's compliance with this clause must be obtained when contract bids are received."

ACRS Structural Steel Chain of Certification



For structural steels, ACRS certifies the steel mill of manufacture, who must actively demonstrate traceability of their supply to the steel distributor. ACRS is working with Steelwork Certification Australia to develop “end to end” certification from mill to site that will provide confidence in fabricated structural steels from the purchase of verified steel from ACRS certified mills right through to delivery of the finished fabricated steel to the project site.

Independent, Expert, Third Party Certification

The only way to be truly sure that the materials being used conform fully with the appropriate Australian and New Zealand Standards and are fit for purpose, is through independent, expert third party certification with ongoing validation.

ACRS is an independent, expert, not for profit steel conformity body set up for consumer benefit. ACRS provides a fully independent, expert assessment and certification for both Australian and internationally sourced construction steels, including reinforcing steels, structural steels and prestressing steels and includes product traceability.

All ACRS auditors are qualified metallurgists with many years of experience working with steels.

ACRS certification makes checking for compliance with the relevant Australian and New Zealand Standards easy. It demonstrates INDEPENDENTLY and EXPERTLY that the supplier consistently meets the Standards stated on the certificate.

By using ACRS certified construction steels, builders and contractors can be confident that they are getting the AS/NZS compliant materials that they ordered, and engineers and building certifiers can be confident that steel meets the requirements of the Building Code and associated Standards.

ACRS has operated to the UK version of the EU system since 2001, and ACRS is unlike any other system in Australia or New Zealand. As such, the ACRS scheme assesses several important aspects of supply of steel to Australian and New Zealand construction projects:

1. Steel manufactured to a specific standard (ACRS “Stage 1”), including:
 - Steel reinforcing bar
 - Steel reinforcing wire
 - Prestressing bar, wire, and strand
 - Structural steels
2. The subsequent working of ACRS “Stage 1” steel into its final form (ACRS “Stage 2”), including:
 - Processed (fabricated) steel rebar,
 - rebar threading and application of the coupler
 - welded steel mesh manufacture
 - structural steel welded sections from steel plate
3. The traceability of the steel between Stage 1 and Stage 2 to ensure integrity of supply, viz:
 - ACRS Stage 1 and ACRS Stage 2 certificate holders must hold ACRS certificates for all their sites and for all their AS/NZS materials to demonstrate they can manage full traceability of conforming materials;

- ACRS Stage 2 certificate holders must only use ACRS Stage 1 materials
- ACRS Stage 2 certificate holders must demonstrate that their process does not render Stage 1 steel non-conforming

Visit ACRS’ website at www.steelcertification.com for full details of all Stage 1 and Stage 2 certificate holders and materials to update your preferred supplier lists.

ACRS ‘End-to-End’ Traceability

What Does End-to-End Really Mean?

When we say ‘end-to-end’, we’re talking about the ability to track information on all raw materials, components, and associated processes across the supply chain, including the design, manufacturing, supply, and delivery phases.

‘End-to-end’ traceability is directly comparable to ACRS product certification scheme’s cornerstone ‘All products, all locations rule’ which has provided market confidence in steels supplied under ACRS product certification for nearly 20-years.

The ACRS 'Chain of Certification'

Construction steels manufactured to AS/NZS Standards can be rendered non-conforming by poor transformation, e.g. through such processes as cutting, bending and welding.

Certification systems that only assess the mill of manufacture do not provide for validated performance to Standards of the as-delivered product.

ACRS' 2-stage steel certification scheme and the new ACRS traceability scheme have been developed to give you confidence in your steel supply.

For reinforcing steels, ACRS certifies BOTH the steel mill that manufactures the steel AND the steel reinforcement processor and mesh supplier, while for structural steels, ACRS certifies the steel mill that manufactures the steel, AND the welded section manufacturer, who must actively demonstrate traceability of their supply to and from the steel distributor.

ACRS completes first coupler system and first coupler supplier certification to Road and Bridge Specifications

ACRS co-operation program with the UK for certification of coupler manufacture and supply to the Australian and New Zealand construction industries sets a new international benchmark.

ACRS has developed this new system with its UK sister organisation, UKCARES, with each benchmarking its processes and procedures against the other's certifications. This process, is the first in a series of planned joint developments and delivers an unprecedented level of cooperation between international accredited product certification bodies, benefitting Australian and New Zealand consumers, construction industries, and conforming international product suppliers.

Under this signature new system, ACRS can now utilise relevant UKCARES' technical reports and audit reports to leverage compatible technical information where equivalent to Australian and New Zealand requirements, reducing costs to suppliers and time to decision for ACRS certification. Similarly, UKCARES is able to accept compatible ACRS information.

ACRS coupler manufacture certification (Stage 1) and coupler application certification (Stage 2) is JAS-ANZ accredited and covers the requirements of both RMS and NZTA for approval of mechanical reinforcing bar splices, as well as the audit and verification requirements of the ACRS Product Scheme.

ACRS' continued delivery of certification levels for the local businesses and agents of the coupler suppliers ensures the most rigorous verification-based system available, exceeding the EU system in some important respects for suitable supply to Australian and New Zealand specifier and consumer requirements.

Be sure your coupler procurement policies reference both ACRS coupler manufacture certification (Stage 1) and ACRS coupler application certification (Stage 2) to manage your risks of both procuring non-conforming couplers and possible subsequent non-conforming application of approved couplers.

ACRS Benchmarks against EU Peak Certifiers

ACRS recently met peer certification bodies in UK, Germany and Italy, continuing ACRS' longstanding program of information and technical exchange operating since 2008.

This program of detailed discussions across a range of subjects between peer, independent certification bodies ensures ACRS continues to deliver assessment methodology, meeting Australian and New Zealand industry requirements to the highest levels.

Following on from these meetings, ACRS will be developing new areas of certification in consultation with key stakeholders, including Austroads and Engineers Australia representatives.

Please contact ACRS, free of charge, if there is any aspect of steel specification, procurement, and supply that your team would like to discuss. All enquiries are confidential. Email: info@steelcertification.com or call +61 2 9965 7216.



How sustainable is your floor?

When we talk about sustainability, what comes to mind? For most of us, it is about meeting our own needs whilst ensuring our choices don't negatively impact future generations.

With sustainability in flooring, each product has its own benefits and factors to consider before making a final decision. The Australasian Timber Flooring Association (ATFA) have outlined how the range of 'timber' flooring products measure up when considering the lifecycle of the product and its environmental credentials.

ATFA CEO, Randy Flierman reminds us that "If you're considering which flooring choice will be the most long-lasting, timeless and sustainable, then look no further than timber".

Timber needs to have been harvested responsibly in order to be considered sustainable. There are both Australian and international standards around harvesting timber, with major production forests ensuring that timber is harvested in a rotation which means there are always new trees being grown.

When considering sustainability and benefit to the environment, traditional solid timber flooring (including solid parquetry) is king. This is because all solid timber flooring stores carbon, which contributes to offsetting the carbon dioxide emissions, and this in turn helps reduce the effects of climate change. Other flooring products do not provide the same benefit.

Also, as indicated, these products are made from sustainably managed forests and with some floors known to have had a lifespan exceeding 100 years.

Solid timber floors are also made to be refurbished many times during their life, whereas most other flooring products will need to be replaced when they age and become worn. When you sand solid timber flooring back to bare timber and recoat them, the floor comes back to near new condition.

Solid timber flooring is known to add up to 3% to the value of your home. Therefore, whilst the initial costs may be higher, this is recouped when the house is sold.

Alternatively, engineered flooring is generally made up of layers of timber that are glued together. These products can be either fixed to the subfloor or they can be floated on an underlay, and they are generally pre-finished, so no site sanding and coating is needed, making it a more convenient and time effective option. Only the decorative layer is of high value timber, which enables our high value slower growing timbers to cover a greater area on the floor.

Laminate flooring resembles timber boards, and often has a textured surface to replicate the appearance of solid timber boards. Underneath the surface, wood fibre provides the structure of the product and makes up most of the volume.

Laminate flooring shares some of the advantages of engineered flooring in that it is a finished product after laying and it also provides a very durable floor surface. This flooring is only laid as a floating floor over an underlay and would usually be replaced within 20 years.

Cork flooring is also a highly sustainable option, as only the bark is used, so the tree

does not need to be harvested at all. Cork flooring is often sought after for its softer and more forgiving feel. It is a stable product which can last around 30 years. Like timber and some engineered flooring, it can usually be re-sanded and coated when needing to be refurbished.

In regards to hybrid flooring, many people question whether it is or isn't timber flooring. Hybrid flooring is a general term covering products that you may know as LVT, WPC or SPC flooring. Although some SPC flooring can have a sliver of timber on the surface, these products are generally timber look alike products and differ to laminate flooring in that core layer is a form of plastic.

Hybrid flooring products are moisture resistant, durable and easy to care for which is beneficial. Due to these generally being lower cost options, owners see less value in keeping them for long periods and therefore may be more inclined to replace them after 5 to 10 years.

When choosing your next flooring, ensure you consider all of these environmental attributes and make sustainable choices for the future generations.

For more information, including how to become a member, please call ATFA on 1300 361 693, or visit: www.floorchoices.com.au



THE CHOICE IS YOURS!

RANGE OF MODELS
**IN STOCK
NOW**

SET UP &
READY TO GO



At A1 Roadlines we understand that our customers have a range of preferences when it comes to fleet vehicles. That's why we fit and service the Scorpion II TMA across a full range of suitable host vehicles from world-leading manufacturers including **ISUZU**, **UD**, **FUSO** and **HINO** to name a few.

So, when it comes to selecting a fully MASH tested, passed and eligible TMA that has also been **ASSESSED, APPROVED & RECOMMENDED FOR ACCEPTANCE** throughout Australia by ASBAP (Austroads Safety Barrier Assessment Panel), the only name you need to remember is **Scorpion II® TMA** from **A1 Roadlines**. When it comes to the brand of host vehicle... that's up to you!



THE EQUIPMENT YOU NEED – THE SERVICE YOU EXPECT

A1 Roadlines Pty Ltd | 89 Rushdale Street, Knoxfield, Victoria 3180 | www.a1roadlines.com.au

P: 1300 217 623 (A1ROAD) | **F:** (03) 9765 9499 | **E:** sales@a1roadlines.com.au

GET THE FACTS!

on TRUCK MOUNTED ATTENUATORS (TMA's)

BEWARE OF 'FAKE NEWS'

With the move from NCHRP350 testing to MASH (Manual for Assessing Safety Hardware) as the preferred testing for Truck Mounted Attenuators (TMA's) in Australia currently progressing there has been confusion amongst some equipment owners as to what equipment is compliant and, perhaps more importantly, what the status of their equipment will be after Australia moves to MASH as the testing standard.

This situation has no doubt been inflamed by the inaccurate information and spurious claims that have surfaced over the past 12 months – including claims that some units will no longer be permitted to be used after December 31, 2020.

With that in mind, the following fact sheet has been developed to provide key FACTS as to the current status of the 'Transition to MASH Guidelines'.

FACT!

The move by the Austroads Safety Barrier Assessment Panel (ASBAP) towards MASH testing and certification is a complex process that will take some time to implement. The Panel is transitioning the current suite of accepted road safety barrier systems and devices within the Australasian market to MASH guidelines over an extended timeframe, with Part 2 Products (which includes TMA's) to be completed by 31 December 2020.

FACT!

The transition to MASH guidelines is a lengthy and ongoing process and lists of 'Austroads Approved Products' are currently a Work in Progress. If a product does not currently appear on a jurisdiction's list, or is not currently recommended for acceptance at an Austroads level by ASBAP, it **DOES NOT** mean that it has not been successfully tested and certified to MASH guidelines, or that it is not acceptable for use in that jurisdiction. It may simply have not yet been assessed by ASBAP.

FACT!

This **DOES NOT** by any definition mean that non-MASH tested equipment is suddenly obsolete or can no longer be used. It also **DOES NOT** render TMA's that have been previously approved as tested under NCHRP350 guidelines obsolete or unusable – **to suggest otherwise is simply NOT TRUE.**

FACT!

The Scorpion® II Truck Mounted Attenuator was the **first TMA to be fully certified as Tested, Passed and Eligible to MASH 16** by the U.S. Department of Transportation Federal Highway Administration. The U.S. Department of Transportation Federal Highway Administration **Safety Eligibility Letter CC-132** for the Scorpion® II TMA can be viewed online at: https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/cc132.cfm

FACT!

While there is a formal agreement on the transition to MASH testing from NCHRP350 testing, there is **NO CUT-OFF DATE** for using equipment that has been certified under the NCHRP350 testing while it is operational – **to suggest otherwise is simply NOT TRUE.**

FACT!

The Scorpion® II Trailer Attenuator is also fully certified as Tested, Passed and Eligible to MASH 16 by the U.S. Department of Transportation Federal Highway Administration. The U.S. Department of Transportation Federal Highway Administration **Safety Eligibility Letter CC-138** for the Scorpion® II Trailer Attenuator can be viewed online at: https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/cc138.cfm

FACT!

Even if a TMA is recommended for acceptance at an Austroads level by ASBAP, it must still be approved for use in individual jurisdictions by the relevant State Authority. The State Authorities are responsible for approving the use of TMA's in their individual jurisdiction.

CHECK THE FACTS

Scorpion II® TMA

Truck Mounted Attenuator





**TrafFix
Devices Inc.**
Engineered Products for Safer Highways



MASH TM

Manual for Assessing Safety Hardware

TESTED, PASSED AND ELIGIBLE



For further information, contact:

A1 ROADLINES PTY LTD

P: 1300 217 623 (1300 A1 ROAD)

E: sales@a1roadlines.com.au

www.a1roadlines.com.au



AUSTRALIA'S PREMIER INFRASTRUCTURE EXPO

www.civenex.com



WHAT IS CIVENEX?

CIVENEX is the Premier Local Government and Public Infrastructure Industry expo, where industry and Government meet. CIVENEX gathers Local Councils and Government Engineers, Technicians, Public Works Directors Operations Managers, Asset and Design Managers, Contractors and many other Industry Professionals to an expo setting, to showcase new and innovative products, services and businesses. CIVENEX focuses on bringing both exhibitors and key decision makers within the Public Works Infrastructure and Local Government Industry together, where they might not otherwise engage. CIVENEX has bought its exhibitor's decade's worth of business contracts and really helps expose and promote brand awareness within the industry.

CIVENEX has been running successfully for over 64 years and this year is no exception. Previous shows have been very well attended whilst providing an excellent opportunity to facilitate a discussion surrounding Engineering and Public works in New South Wales. With so much knowledge and such a great insight into the industry, we have built up fantastic partnerships and relationships with businesses who not only benefit from exhibiting at CIVENEX but play a large part in the support of IPWEA NSW.



WHAT'S ON AT CIVENEX?

CIVENEX 2020 is set to be our biggest show yet, having moved to the iconic ICC, Darling Harbour on the 19th and 20th of March. We are forecast for 10,000 attendees over the 2 days, 350+ exhibitors, and 300 top level industry speakers on 21 themed summits over 8 stages.

Our exhibitors and attendees are able to take advantage of the many networking lounges available. There is also a VIP section

and a LinkedIn Lounge for further networking. There are many bars and cafes where you can sit relax and take in the atmosphere of this thriving event! Get involved with many of the stage talks over the 2 days, listen to industry professionals speaking about new trends, policies and plans for the future.

As an attendee or exhibitor you also have access to the wellness zone where we will be discussing issues from safety, mental health, silicosis and stress.

Testimonials

"There aren't many places you could find tradies and big wigs within the same room, but CIVENEX somehow manages to make this happen. It has given us the opportunity to have conversations with people we wouldn't usually get the opportunity to. The leads we have made at CIVENEX have played a large part of our ongoing success."

"This expo has given us very good leads we can follow up on. This is the best form of marketing we've done so far. We've been able to connect with leads that are usually very difficult to get in contact with. We're definitely coming back next year."





We have also managed to secure some past and present players who will be hanging around the NRL Zone. And if that's not enough, there will be live entertainment throughout the day to keep everyone entertained.

HOW CAN YOU GET INVOLVED?

With the current infrastructure delivery boom that we are seeing across New South Wales, now is the perfect time to get your business in front of leading Professionals within the industry.

If you seek to develop business relationships, gather relevant leads, showcase your latest products and services, then CIVENEX is the perfect place for you to exhibit. You can contact Louise Taplin, the Sales and Marketing Manager for CIVENEX and she will endeavour to secure you a booth at the show. Spaces are quickly becoming limited and will be allocated on a first come first serve basis.

CIVENEX is a free to attend event, if as a Professional, you want to experience the latest technology and innovation in Construction, Plant and Equipment, Asset Management, Design, Public Works and Infrastructure services, you can register for your complimentary ticket at:

www.civenex.com

EVENT INFO

Where: International Convention Centre, Sydney.

When: Thursday 19th and Friday 20th March

Time: Thursday 19th - 9am to 6pm
(Networking drinks until 7pm)
Friday 20th - 9am to 5pm

Website: **www.civenex.com**

Contact: Louise Taplin, Sales and Marketing Manager. M: 0488 015 534
E: louise.taplin@ipweansw.org

CIVENEX 2020 is set to be our biggest show yet. 10,000+ attendees, 350+ exhibitors, 300+ speakers, 8 stages, networking lounges, cafes, bars. As an attendee or exhibitor, you will have access to multiple networking sessions including Women in Construction, Reconciliation in Construction and the Engineering Hub. There's the St Patricks Irish Bar and Café, the Australian Outback BBQ and lots of entertainment & celebrity guests.

With a forecast of 10,000+ attendees made up of key decision makers, CIVENEX is the only place to be on the 19th and 20th of March!

We welcome you and appreciate your continued support of Local Government and Public Works Infrastructure and look forward to another successful show in 2020.

 **CIVENEX**[®]
AUSTRALIA'S PREMIER INFRASTRUCTURE EXPO

Regional Forums 2020

The IPWEA NSW Events Team is currently touring the state bringing their Regional Forums to local communities.

The Regional Forums are designed to inform, engage and connect local Public Works Professionals. We began our journey in Ballina on February 24th and will conclude in Manly on April 3rd. Since their inception, the Regional Forums have educated numerous local professionals, provided innovative solutions to contemporary issues as well as assisted in bringing cost-effective solutions to all corners of New South Wales.

The recent bush fire crisis has affected all corners of New South Wales with devastating consequences for our local infrastructure. The Regional Forums provide a unique platform for local communities to band together and recognise the hard work they done throughout this unprecedented time. Regional Forum attendees have been privileged to witness a Bush Fire Update provided by the Office of Emergency Management.

Regional Forum presenting partners provided a myriad of insightful presentations on asphalt, concrete pipes, erosion mats, road safety and freight transport.

To find your closest Regional Forum, view the program or register your attendance please visit www.ipweansw.org/regional-forums



Upcoming NSW Marine Infrastructure and Coastal Management Forum



Be part of the first ever IPWEA NSW *Marine Infrastructure and Coastal Management Forum*. The Forum will provide an exceptional platform for attendees to collaborate with the Marine Sector to establish and maintain effective and thriving relationships.

The line between the land and the sea has always been an interesting discussion point between Councils and the State Government. A forum to discuss this common interface was developed to bring together and create an opportunity for Local Government, State Government and the private sector to work together in providing a wide range of solutions to ensure the continual improvement of marine environments and infrastructure.

Delivered in both Northern and Southern NSW the Marine Infrastructure Forum is a 1.5-day Forum showcasing the latest innovations in Marine Infrastructure and Coastal Management. This is your best chance to collaborate with the Marine Sector and enhance your working relationships through invaluable networking opportunities during the Forum breaks, dinner and breakfast followed by a local site tour showcasing excellence in project delivery.

The forum will cover the broad remit of marine infrastructure and coastal management including:

- Waterway management
- Environmental approvals
- Construction (Boat ramps, marina's)
- Marine Developments
- New technological advancements
- Mapping and monitoring changes in estuaries
- High value solutions
- Marine infrastructure plans and designs
- Maintenance funding

NSW MARINE INFRASTRUCTURE AND COASTAL MANAGEMENT FORUM DATES

Coffs Harbour: Wednesday 20th May – Thursday 21st May 2020

Shellharbour: Wednesday 27th May – Thursday 28th May 2020

For inquiries on attending, presenting or sponsorship opportunities and packages, please do not hesitate to contact:

Jenny Ban
Events Manager
P: (02) 8267 3006
M: 0478 804 773
E: jenny.ban@ipweansw.org

For more information, including details on how to register for the Forum, please visit: www.ipweansw.org/nsw-marine-infrastructure-and-coastal-management-forum



2020 IPWEA NSW State Conference

The 2020 IPWEA NSW State Conference is back at the Crowne Plaza Hunter Valley on Wednesday 4th – Friday 6th November, this is your chance to be part of shaping the conference program and the future of public works in NSW.

Call for Awards Nominations opens on Monday 23rd March 2020, this is your opportunity to nominate your projects for the annual Engineering Excellence Awards. There are ten categories for you to enter your projects, programs, innovative developments and outstanding colleagues into. Each project nominated for an award showcases the individual as well as the team ambitions to improve the local communities in which we reside. Don't miss this chance to give your team and project the recognition they deserve!

The Call for Paper submissions open on Monday 6th April 2020, this is your opportunity to present to over 400 like-minded

professionals. You will be able to share your experiences with your colleagues as we continue to advance and grow as one. The State Conference offers a chance for speakers to address a diverse range of technical and management issues that impact public works professionals, our local communities and most importantly the future of NSW.

For further information, please visit the website: www.ipweansw.org/state-conference



Guide to Developing Road Safety Strategic Plans for Councils

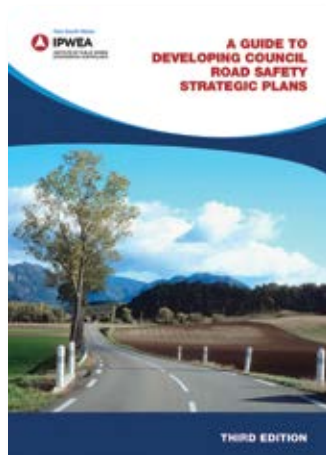
A Guide to developing Council Road Safety Strategic Plans has been designed to assist local Councils to develop road safety strategic plans and integrate them into the local government integrated Planning and Reporting Framework.

The guide is based on 'best practise' methodology developed through systematic investigation, consultation and feedback on the experiences of a number of NSW councils. These councils represented a range of large and small, rural and urban local government areas that had developed and implemented road safety strategic plans.

This is the third edition of this Guide which has been revised in the context of changing circumstances including the introduction of the NSW Government legislation for integrated planning and reporting for local government (NSW Division of Local Government and Planning 2013a).

IPWEA NSW has successfully obtained funding from Transport for NSW to financially

assist Council employees to attend a one-day training session. The session will assist Local Councils to develop road safety strategic plans. Training sessions are now available, for more information or to nominate two employees from your council contact Elsie our Professional Development Manager on 02 8267 3008 or elsie.p@ipweansw.org.



New Improved Supervisors Handbook

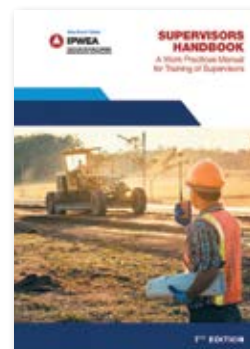
The seventh edition of the once Gangsters Handbook has been edited to consider the many changes in legislation, regulations, practices and procedures that have taken place since the last edition.

The handbook is for use by field staff in city, urban and country situations and we also believe it is a valuable guideline to younger engineers as they gain experience in the field.

It should be used by members of the workforce to find out what "teams" do and to open up opportunities for workers to seek advancement in their careers. The Institute can provide assistance to staff to seek recognition for the experience they have gained and develop their skills - in an appropriate environment, such as 'on the job'.

The Supervisors Handbook is now available to purchase. For more information please contact our Professional Development Manager, Elsie, on T: 02 8267 3008 or E: elsie.p@ipweansw.org

To find your closest Regional Forum, view the program or register your attendance visit www.ipweansw.org/regional-forums



ABOUT IPWEA NSW

The Institute of Public Works Engineering Australasia (IPWEA) NSW Division is the professional membership organisation who provides services and advocacy for those involved in and delivering public works and engineering services to the community.

IPWEA has been established as a charity with the purpose of advancing the public works sector in Australia, particularly in NSW. Our mission is to enhance the quality of life of NSW communities through excellence in public works and services. We seek to inform, connect, represent and lead public works professionals in NSW.

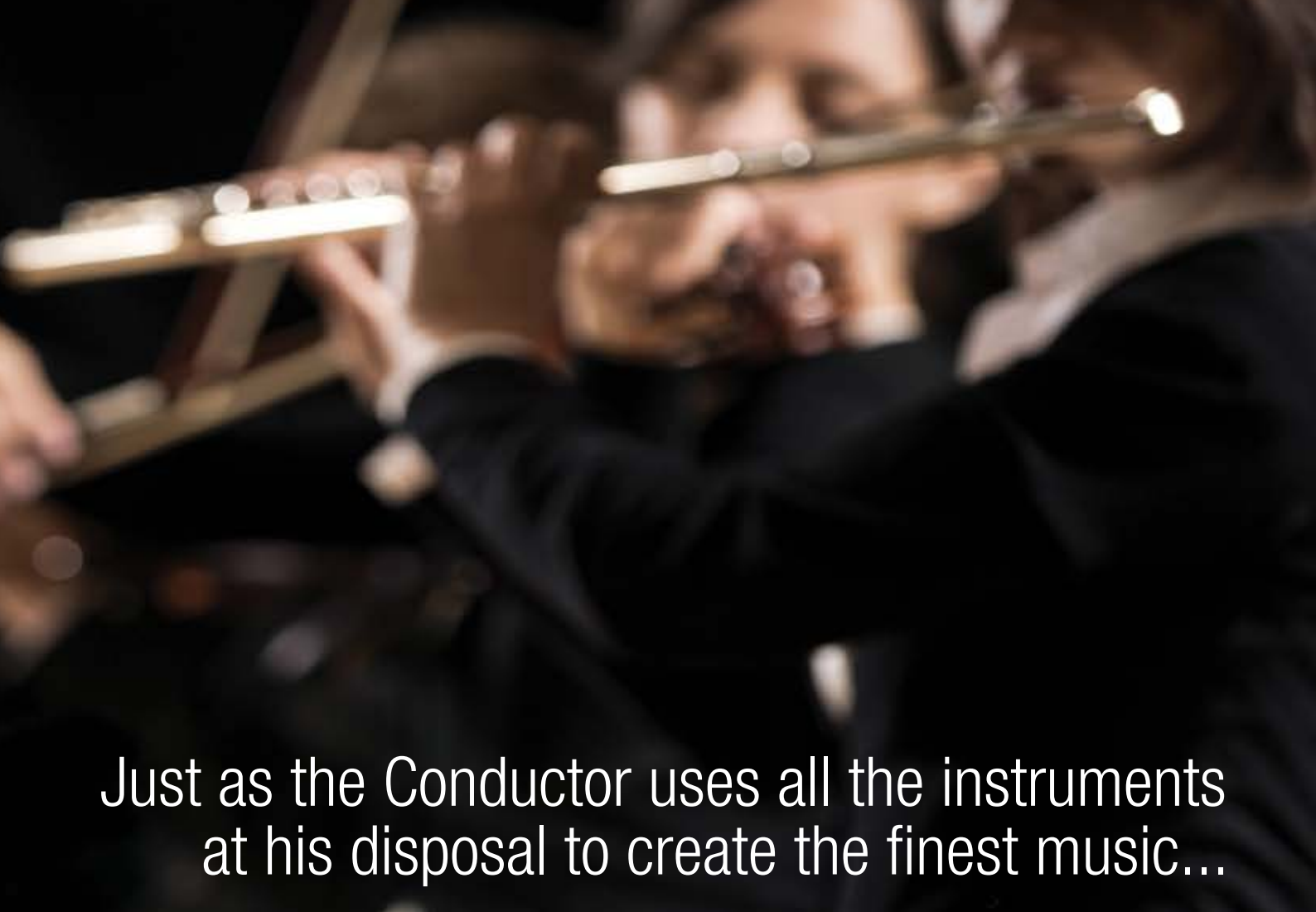
Many of our members are engaged in local government, the tier of government that has at its heart the provision of public infrastructure, works and services, management of roads, bridges, community health, road safety, sport and recreational facilities, water and sewer, emergency management which are all key areas of responsibility for local government engineers.

To become involved in this prestigious membership organisation, visit our website www.ipweansw.org and sign up via our new system and membership portal, or contact us via email at: nsw@ipweansw.org. Don't miss out on the opportunity to be a part of something special.



So too, the Engineer can use the vast capacity of Finite Element analysis to validate, optimize and adapt data to create the finest design solutions.





Just as the Conductor uses all the instruments
at his disposal to create the finest music...



www.if3.com.au

50 YEARS OF EXCELLENCE IN CONCRETE



To kick start the celebrations for our Golden Jubilee, the Concrete Institute of Australia invites everyone to attend our nationwide "birthday party" which will be held on Friday 17th April 2020. The date marks the occasion in which the Institute was officially registered as a company limited by guarantee and with the signing of the Memorandum of Association and Articles of

Association in 1970, and by a twist of fate, falls on a Friday next year.

The night promises to be an extravaganza of concrete around the country, not only in the capital cities, but in our regional centres as well. All the birthday party events in the major capital cities will be joined together by a live stream where we will cross to various states for interviews and catch ups with members.

Each venue will also have a birthday cake, sponsored by SRG Global, that will be cut at the same time, and this will be followed by a sharing of their highlights and acknowledging those people and projects which over the previous 50 years have helped make the Institute the successful organisation it is today across Australia.

Most importantly it is a chance to reconnect with old colleagues, catch up with your current network, or meet a new bunch of people who have had a part to play in the first 50 years of the Institute, and will be involved in the next 50!

Registration is now open for the Birthday Party and you can check out all the details on our web site. There are also plenty of sponsorship opportunities available and these can also be found on the site. This is a once in a lifetime opportunity, as you only turn 50 once, to celebrate everything that the Concrete Institute of Australia has brought to our industry and will continue to do so for the next generation.

EVENT: Concrete Institute of Australia
50th Birthday Party

DATE: 17th April 2020

DETAILS & REGISTRATION:

[www.concreteinstitute.com.au/
Golden-Jubilee-2020-Party.aspx](http://www.concreteinstitute.com.au/Golden-Jubilee-2020-Party.aspx)

The official 50-year birthday cakes at each of the seven venues around the country are proudly sponsored by SRG Global.



BUILDING THE FOUNDATION FOR THE NEXT 50 YEARS

Did you know that if you are under 35 years of age, you could enjoy membership of the Concrete Institute of Australia for just \$160 per year!

To ensure we make our Individual Membership is accessible as possible, we have discounted the membership fee to those in the earlier stages of their careers or maybe even just entering the workforce after completing their studies.

Individual Young Members receive all of the benefits of membership including receipt of a comprehensive New Member kit, four (4) copies of our magazine 'Concrete in Australia', regular e-communications, access to CIA and fib technical documents, an extensive online Resource Centre and Library, access to the CIA Mentoring Program, ability to nominate for positions on our Technical and Standards Committees and also to nominate for positions on State Committees and the National Council.

Our Individual Members are vitally important to the ongoing success of the Institute. We urge senior managers to support their younger staff by encouraging them to engage with the CIA and develop a solid network of peers and ongoing professional development with participation in our Mentoring Program and attendance at our events.

By joining a professional association, you are developing a profile and reputation of supporting the sector and interest in developing your career. With your participation on various Committees, you will broaden your networks and develop your skills both technically and professionally.

"I highly value my membership to the Concrete Institute of Australia. Since joining I have found the CIA a very welcoming institute that really strives to educate and engage its young members. I have found the membership valuable in my career as I



have been able to develop my knowledge and expand my network through conferences, technical nights and access to resources. I highly recommend the CIA for young members as it is a great starting place for meeting like-minded peers and professional development."

**Jemma Ehsman, Graduate Structural Engineer
- Vinsi Partners.**

All new Individual Members also receive a complimentary ticket to a state event of their choice during their first six (6) months of membership, to the value of \$90 and also a complimentary ticket for an eConcrete presentation.

NEW MEMBERSHIP SERVICES MANAGER

The Concrete Institute of Australia is pleased to announce that Nicole Walker joined the Institute in late 2019 as Membership Services Manager. Nicole comes to the Institute with over 15 years of experience in membership and professional development services in associations across Australia. Previous roles have included senior positions at Local Government Managers Australia, Australian Institute of Project Management, and Early Childhood Intervention Australia where she has gained extensive experience in developing membership policy, improving operational processes and procedures, and delivering on membership services.

Apart from her experience in the whole membership life cycle process Nicole also has experience in the implementation of new CRM data bases, as well as setting up new web sites, and she will take a hands on role with advances in these areas for the Institute.

Nicole will also work closely with our young members and regional stakeholders, as well as our core constituents.

One of the many reasons that Nicole enjoys the association environment, is it allows her to work alongside dedicated members and volunteers, whose involvement and support ensure the success of an association.

"My career in associations has introduced me to some amazing people and characters, who, although they are representing different sectors, have a common trait and goal. They commit themselves to representing their peers at the highest level and providing a secure base for the future of their sector."

"The National Council and the Concrete Institute staff have all made me feel very welcome and I am thoroughly looking forward to supporting our Members and learning all about excellence in concrete!!"

Nicole will be attending various events around the country this year, and looks forward to meeting our Members on their home turf.



Concrete Institute of Australia Membership Services Manager, Nicole Walker



THE WORLDWIDE LEADER IN VIBRATION TECHNOLOGY

FLOW AIDS

Any solution for your needs

OLI is the world's top selling manufacturer of electric and pneumatic vibrators. The high level of customer service, guaranteed by 18 trading subsidiaries worldwide, and long-lasting and performing products make us always ahead.

The flow aids range of products offers any solution for your needs and helps you to increase the process efficiency and improve the plant safety.



MEMBER PROFILE

WAGSTAFF PILING –
EXCELLENCE IN CONCRETE

Wagstaff Piling have been Platinum Members of the Concrete Institute of Australia since 2005 and have been incredible supporters of the organisation. As the Institute reaches its 50th year it is honoured to be associated with an organisation as integral to our industry as Wagstaff Piling.

Since its inception in 1980, John Wagstaff Constructions and Wagstaff Piling (WP) have always been innovative and forward-thinking Companies in the foundation engineering field supported by its own engineers and like-minded professionals external to the group.

The WP group has been encouraged to maintain and improve the standards in the theory and practice of geomechanics through sharing of information, communication, education and training within the group and with others in the area of geotechnical engineering.

Over the last 4 decades, WP, as a privately owned Australian company, has completed in excess of 6,000 projects Australia wide with a value exceeding over \$2.0 billion dollars. The group has created a footprint in the community which covers a wide variety of projects in the civil, building, industrial and mining sectors.

Many of the projects have resulted in knowledge sharing which has contributed to an overall improvement in knowledge for the geomechanics profession. These projects include, but are not limited to, new developments such as in-situ soil mixing for

ground improvements, pile integrity testing of bored piles utilizing thermal imaging, high and low strain dynamic testing of piles, thin/slender diaphragm wall construction and high durability stainless steel joints for segmental precast piles. WP has piled over 3,000 bridges in Australia; you will probably drive over one of them today.

WP has always encouraged engineering staff to broaden their knowledge over a wide range of topics. These include construction techniques, engineering structural and geomechanical design, materials selection and application, innovative ideas and solutions in their field of work.

WP has been engaged as a member of the CIA for the last 15 years and is currently a Platinum Member. Our involvement is to ensure we as a company actively participate and contribute in a routine way to the continuous improvement of our engineering profession in the area of concrete technology, design and practice.

By attending local and international conferences and seminars, our engineers broaden their engineering knowledge. The Concrete Institute of Australia (CIA) offers this opportunity to our engineering staff and it is well articulated in the CIA mission statement.

The CIA of today covers a wide range of learning opportunities and experiences through their regular seminars and the bi-annual conference together with the excellent technical publication that is available. The CIA also provides networking opportunities for personnel engagement at the individual level for our engineers to share knowledge and learn from others in the industry on a formal and informal basis.

WP is very proud to be an innovative company for many reasons. The company introduced the Swedish Balken Piling system in 1982 which included the manufacture of high quality precast segmental piles together with hydraulic Banut Piling machines and supplemented this system with high strain dynamic pile testing.



There have been various other innovations over the decades and more recently the company has progressed and developed; Cutter Soil Mixing (CSM) technique and the introduction of specialised machines for the installation of thin diaphragm wall for basement walls and other retention systems. WP Introduced the first Cutter Soil Mixing machine into Australia in 2005. Numerous projects throughout Australia have utilised this technique. The largest being a cut-off wall at Botany Bay in Sydney for the Orica Company. This project involved the soil mixing of a cut-off wall around the site 1 metre thick to the sandstone bedrock to depth of 30 metres to contain the contaminates on site. Mass mixing techniques were used to cap the site with a bentonite- cement capping layer.

WP Introduced specialised machines into Australia to install thin diaphragm walls (D wall) 300, 400 and 500mm thick to meet the demands for space saving basement walls. The introduction of this wall to complement our larger diaphragm wall ability to construct 500, 600, 800, 1000 and 1200mm thick D walls has made our company one of the most prolific D wall companies in Australia.

Wagstaff Piling is a team of people dedicated to great engineering and who work together to achieve its company motto: "We don't aim to be the biggest foundation company in the world, but we do want to be the best".





50 YEARS OF EXCELLENCE IN CONCRETE

The Concrete Institute of Australia is proud to announce the launch of its Golden Jubilee 50 Year Celebrations that will take place in 2020.

Activities include:

- Nationwide Birthday Party 17 April 2020
National symposium — Concrete Past, Present and Future October 2020
- Commemorative Book
- Young Professionals and Student Competitions
- Concrete in Australia Medallion

CONCRETE INSTITUTE 
of AUSTRALIA

50th
GOLDEN JUBILEE
2020
50 YEARS OF
EXCELLENCE IN CONCRETE

Remembering our past, celebrating our future.



WANT TO BE INVOLVED? CONTACT US:

✉ history@concreteinstitute.com.au

🌐 <https://www.concreteinstitute.com.au/Golden-Jubilee-2020>



Hollow Core Slab Production in Thailand

New Slipformer S-Liner® from Echo Precast Engineering installed at Chonburi Concrete Products

Chonburi Concrete Products PCL (CCP) Thailand, relies on the Slipformer S-Liner® from Echo Precast Engineering for their production of hollow core slabs. One of the seven companies belonging to the PROGRESS GROUP, Echo Precast Engineering is a leading global specialist equipment supplier to the precast industry.

CCP are predominantly using the new Slipformer S-Liner® to produce hollow core slabs, which are mainly used for flooring applications. The Slipformer S-Liner® enables them to produce the 1200mm wide slabs in a range of thicknesses, including 8, 10, 12, 15, 20 and 25 cm, and in lengths ranging from 1 to 10 metres.



Mr Chayakorn Srinual, Plant Manager and Mr Nora Saengsa-ngasri, Assistant Vice President of Production supervised the installation of the new machine.



CCP uses the Slipformer S-Liner® to produce hollow core slabs ranging from 1 to 10 metres in length and in thicknesses from 80mm to 250mm.

The precast elements are used for a wide variety of projects including factories, large buildings, hospitals, hotels and schools, as well as in residential construction.

The new machine from Echo Precast Engineering provides the ideal solution for versatile, flexible production requirements to meet CCP's requirement. Together with standard hollow core slabs, the machine can be used for a wide range of precast elements such as beams, lintels, foundation piles, gutters and prefabricated ceilings that include insulation as well as heating- or cooling systems.

Due to the specific construction of the slipformer - and the use of zero-slump concrete - the S-Liner® has provided an exceptionally cost-efficient manufacturing solution which also easy to use and maintain.

CCP manufactures and distributes concrete products and ready mixed concrete in Chonburi, Thailand. It also distributes construction materials and home decoration equipment, manufactures and distributes autoclaved aerated concrete blocks and standard concrete blocks, as well as providing a range of transport vehicle rental and property leasing services. In the past few years the company has invested in expanding its manufacturing capability, while at the same time developing and enhancing a range of new products. CCP's range of innovative products are widely regarded as 'the product of choice' throughout both the public and private sector by contractors across Thailand and beyond.

For further information, please visit:
www.echoprecast.com



COMPLETE PRECAST TECHNOLOGY WORLDWIDE

- Highly automated and customized carrousel plants
- Reinforcement machinery and mesh welding plants
- Battery moulds, tilting tables, various mould systems
- Slipformer, Extruder, equipment for production on beds
- In-house precast production and in-house testing plant
- Software for machinery and complete ERP systems

www.progress-group.info

PRECAST CONCRETE THE PERFECT FIT FOR NEW RESIDENTIAL TOWERS



Project: Moda The Hills – Residential Towers

Precaster: Alpha Precast

Location: Kellyville, NSW

Client: Aland

Builder: Aland

Engineer: Mance Arraj

Architect: Aland

Precast concrete is the perfect fit for a new soon-to-be home to thousands of residents at Moda the Hills in Kellyville NSW. It is part of a visionary project to transform Sydney's North West to

incorporate flourishing green spaces with cycle and walking paths in village hubs, shopping centres and a thriving business district.

Contemporary in style, Moda will provide the perfect balance of premium living for young professionals and families, or owners looking to downsize. With the benefits of modern amenities in a unique contemporary precast design, residents will enjoy Moda's natural external surrounds whilst remaining close to public facilities.

Located alongside the leafy grounds of the Castle Hill Country Club and International Golf Course, the development is a short walk to the Norwest Business Park, only 600m from the North-West Rail Link Norwest Station or a 40-minute drive to Sydney's CBD.

The soon-to-be completed development will contain rooftop gardens, high speed internet, undercover car parks, BBQ facilities, gym facilities and a pool, all located near schools and public transport.

RESIDENTIAL TOWERS BROUGHT TO LIFE BY PRECAST

Acclaimed developer Arden Group has a raft of residential developments both completed and underway in Sydney and Brisbane. To bring Moda to life, Arden assembled an award-winning team of architects, landscape designers and builders to deliver an exceptional standard of living in the Hills neighbourhood. An integral part of this team is Alpha Precast.

In March 2019, the Sydney-based National



Ship-lapped joints are commonly used to assist the prevention of water ingress. Recesses and starter bars were also incorporated into the panels to connect to the flooring slabs.

SITE BENEFITS FOR BUILDER

For such a large scale project, an off-site, factory-controlled process of manufacturing was favoured. As well as significantly shortening the construction programme, there was a priority to create a safer and tidier work site. The preference for precast meant fewer trades on site, fewer deliveries, less waste and a cleaner and more efficient work environment. With Alpha working as an extension of the builder's team, high standards were maintained across all works completed – both in the factory and on site.

A WIN FOR RESIDENTS TOO

For the 200 families who will occupy the residences, the sophisticated design of the four mid-rise towers and the high quality of construction will create a consistent luxurious feel to the entire project.

"We are proud that we can be part of delivering beautiful homes for so many families, homes that will stand the test of time, while at the same time being thermally efficient, termite proof and boasting a four hour fire rating," says Mr Nassar.

The project is due to be finished approximately December 2020.



Precast member was awarded the contract to manufacture and install precast concrete walling elements for the project. While one of Sydney's newer precast manufacturers, the company is under the stewardship of owner Daniel Nassar who has over 20 years of precast manufacturing under his belt.

According to Mr Nassar, Alpha brings together a team of highly experienced individuals to inspire confidence as they design, manufacture and install precast concrete. With a guaranteed priority of quality and service, Alpha designs and manufactures precast in one of the biggest facilities under one roof in Australia.

"In Moda's case, we manufactured 999 Class 2 off-form wall panels for a total of 48 levels of

four mid-rise towers," says Mr Nassar.

Panels measured between 1 and 6 meters wide and between 2.8 and 3.6 metres high and were cast between June and September 2019.

Of the four residential towers, three are 12 storeys high, and one is six storeys.

INSTALLATION IN UNDER 16 WEEKS

According to Mr Nassar one of the reasons for precast being chosen was its speed of construction.

"We managed to install all 999 panels on the four towers in under 16 weeks," he states.

STRUCTURAL INTEGRITY

Being loadbearing, the panels' design included both standard flat joints and ship-lap joints.





ALPHA PRECAST

With over 20 years of precast concrete experience, Alpha Precast manufacture and deliver precast walls, flooring systems, V-slab flooring, structural beams & columns and custom moulds for all commercial, residential and industrial needs.

Alpha not only a name ... it's a status



www.alphaprecast.com.au

6 Brunker Road, Chullora, NSW 2190
Ph: (02) 9794 6900

MEMBERS CONTINUOUSLY IMPROVING WITH EXPERT HELP ON STRATEGY

National Precast has announced a new service exclusively available to members that will allow them to refine and finesse their strategic ambitions.

National Precast CEO Sarah Bachmann says the service, provided by world renowned accounting and advisory firm, Grant Thornton, aligns well with the organisation's members' philosophy of continuous improvement.

"Our members are the best in the business, and this new service provides an opportunity to identify and focus on future priorities, ultimately delivering clients an even better service," Ms Bachmann comments.

Known as 6-Box, the service involves a conversation and report around 6 strategy areas -

- realising strategic ambitions;
- maximising client value;
- leadership and talent;
- financing growth;
- managing risk and regulation; and
- optimising operations.

According to Robert Powell, Grant Thornton Partner – Private Advisory, the cornerstone of 6-Box is a conversation featuring informed questioning and visual aids. Together, these make it easy to articulate ambitions, prioritise areas of focus and develop a clear action plan.

The 6-Box framework is dynamic and can be used to facilitate a full workshop with key management which provides insight into management's alignment on strategic priorities and enables them to share their views on opportunities and challenges. Alternatively, the framework can be applied to a one-on-one conversation.

"Rather than jump to solutions or insights, we listen to management's views on where it wants to see the business, what's getting in the way and what can be done about it," Mr Powell commented. There is no preparation work required, all that is needed is an open mind to embrace the opportunity for reflection and to talk openly.



Robert Powell, Grant Thornton Partner – Private Advisory

Following the 6-Box conversation, National Precast members will receive a summary report, along with the outline of a practical implementation plan for identified priorities. This easy to read document provides a handy reference resource that allows members to track progress and stay focused on isolated priorities.

"We're delighted to partner with Grant Thornton and look forward to seeing the outcomes," added Ms Bachmann.

WORLD LEADING REBAR MANUFACTURING EQUIPMENT

Supporting and supplying to Australasia's leading reinforcing manufacturers for over 40 years. Backed by MEPGroup Italy, Machinery Indents have the structure, experience and advice to help you with rebar processing equipment

- New and Used Machine Sales
- Genuine MEPGroup Spare Parts
- High Automation and Flexibility
- Factory Layout Design
- Highest Quality Machinery
- Customer Solutions
- Programmed Maintenance
- Manufacturing Process Consultation
- Manual Handling Solutions
- On/Offsite MEP Equipment Training
- Precast - Rebar Manufacturing Equipment
- Technical Assistance

MEPGroup Australasian Agent
43 Jessica Road, Campbellfield
Victoria, Australia

P: +61 3 9357 9769
F: +61 3 9357 0699
E: enquiries@mi-mep.com.au

www.mi-mep.com.au

MI-MEP
MACHINERY INDENTS PTY LTD

HIGH PERFORMANCE STORAGE WITH PRECAST

Project: YOURSTORE Storage Estate

Precaster: Hollow Core Concrete (with Alpha Precast)

Location: Belrose, NSW

Client: Your Store

Builder: Beach Constructions (NSW)

Architect: Figgis + Jefferson Tepa

Engineer: Hollow Core Concrete in conjunction with DSC Consulting Engineers

A new total precast structure in Belrose, NSW will provide 97 space options to clients requiring secure storage. The construction of the new two-level facility adds to YOURSTORE's already extensive choice of storage locations around NSW. Not only secure, the spaces will also be naturally thermally regulated by the concrete's high thermal mass and will boast a fire rating of four hours.

FAST AND EFFICIENT CONSTRUCTION FAVOURS PRECAST CONCRETE

Being a total precast structure, construction of the new facility was both cost and time efficient. National Precast member Hollow Core Concrete designed, manufactured and installed various sized elements of precast walling, flooring, columns and beams between May and October of 2019.

FLOORS WITH HIGH LOAD CAPACITIES AND LONG SPANS

Both levels of the storage facility have been designed to allow for heavy vehicle loads of up to 15kPa whilst at the same time maintaining large open floor spans of up to 13.5m. Such heavy loads and long spans were easily achieved with Hollow Core's signature hollowcore floor planks. These floor planks require no propping, are flexible in design and allow for rapid on-site construction. Additionally, they were designed to achieve the maximum level of fire rating, being four hours.

FLOORS SLABS PLUS BEAMS, COLUMNS AND WALLS

The Melbourne based precaster manufactured and installed over 8,000m² of hollowcore prestressed floor planks for the project.

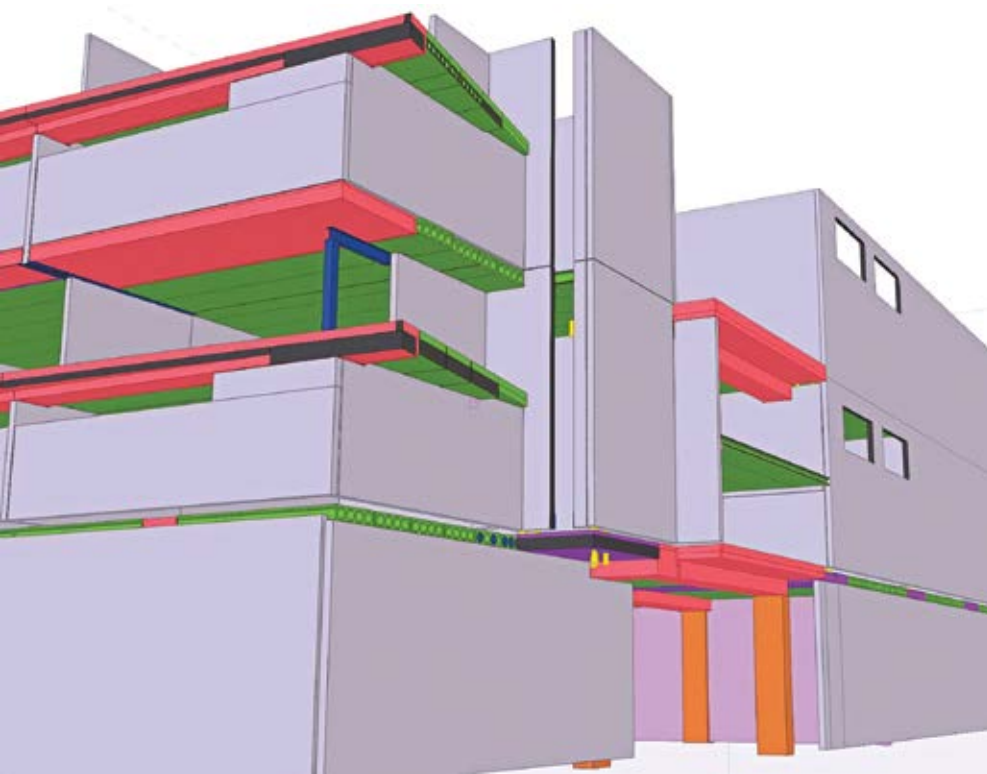
The hollowcore floor planks feature between four and six longitudinal cores that run through the length of each plank. These cores have the primary purpose of reducing both weight and material, while still maintaining a maximum strength to achieve the loads and spans required. 12.7mm diameter prestressed steel tendons are cast into the planks for structural integrity, and to minimise deflection.

As well as the precast flooring, 45 prestressed columns measuring 400mm by 900mm and approximately 650 metres of prestressed, precast beams measuring between 600 and 800mm deep provided structural stability.

Precast elements were also utilised for the facility's walling. Over 5700m² of precast walling panels were designed and manufactured by Sydney-based National Precast member Alpha Precast.

Artist's impression of the soon to be completed YOURSTORE Storage Estate in Belrose in suburban Sydney.





The use of 3D modelling software maximised communication and co-ordination between all of the parties involved on the project, resulting in minimal design clashes during construction.



Melbourne-based precaster Hollow Core Concrete manufactured and installed over 8,000m² of their signature hollowcore prestressed floor planks for the project.

Wall panels ranged between 150 and 175mm thick and some of these panels had an architectural finish which formed the façade for parts of the building.

WHY PRECAST?

By choosing precast concrete for the facility's design and construction, the construction programme was shortened as a result of the speedy on-site installation of the precast elements. Speedy installation as well as efficient delivery and no need to set up and remove temporary formwork,

HOLLOWCORE

HOLLOW CORE CONCRETE PTY LTD



PERFORMANCE BY DESIGN

- Earlier access to the structure for following trades
- Available for jobs of all sizes, from residential and commercial through to major infrastructure
- Range of precast structural systems
- TermoDeck® ventilation system
- Fast premium construction service
- Eliminates back propping
- Innovative and cost-effective prefabricated solution
- In-house design team
- Faster construction

Contact us before you start your next project.
www.hollowcore.com.au

T: (03) 9369 4944 | **E:** info@hollowcore.com.au

FOLLOW @HollowCoreConcrete for our latest news and projects   



significantly expedited construction and reduced labour costs. Choosing off-site manufactured precast also meant that site construction was much less prone to weather, safety and quality-related delays.

COMPLEX GEOMETRY MADE EASY WITH 3D MODELLING

Complex geometry in certain areas of the building demanded high levels of co-ordination between

all of the parties involved. The use of 3D modelling software allowed Hollow Core to efficiently communicate with other parties, resulting in minimal design clashes during construction.

CO-OPERATION DELIVERS SUCCESSFUL OUTCOME

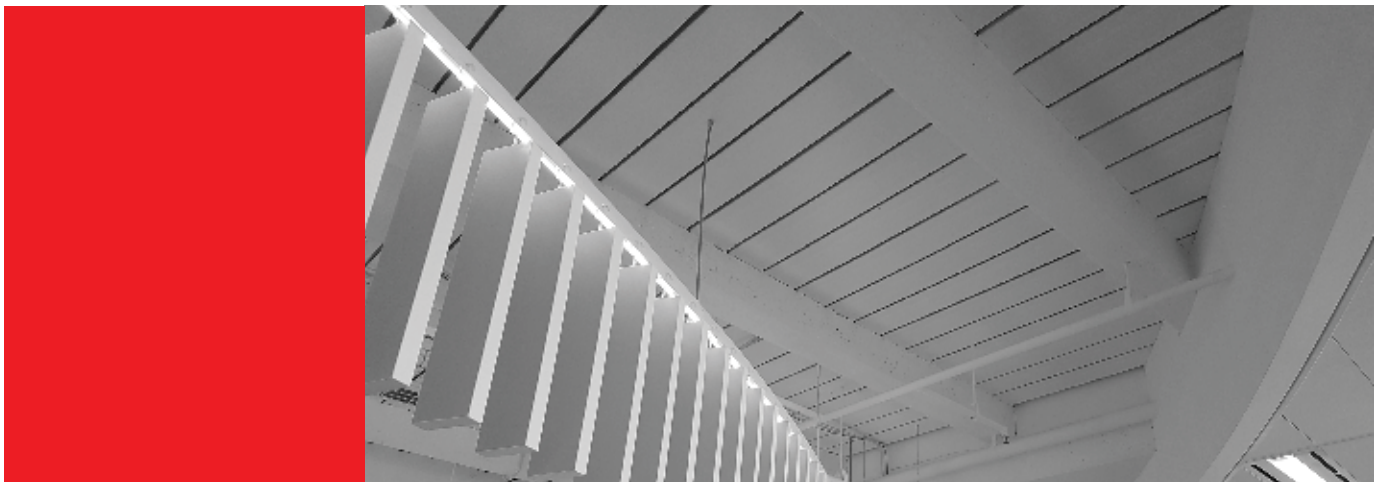
Given the complexity of the structure, all parties are very satisfied with the outcome on site. The project showcases a great use of precast

components, all working together to deliver a solid and robust storage solution. It also demonstrates how a structure's complex geometry can be easily addressed using well-constructed, high tech and high quality precast elements.

The project is due to be finished in mid-2020.

NATIONAL PRECAST MEMBERS WORKING TOGETHER

The YOURSTORE Storage Estate highlights the collaboration of two National Precast Members who both have a strong work ethic. Hollow Core Concrete (Melbourne) designed, manufactured and installed the flooring, beams and columns, while Alpha Precast (Sydney) designed, manufactured and installed the wall panels. Despite being located in different states, the two companies were able to successfully co-ordinate their designs through the utilisation of 3D models.



AUSTRALIA'S PREMIER SUPPLIER OF PRECAST FLOORING SOLUTIONS

- Over 5 million m² of Ultrafloor installed to date nationally
 - Offering tailored D & C solutions for houses to high-rise and everything in between
 - Trusted precast flooring solutions provider of over 30 years standing
- ... and a very proud member of National Precast

Call 1800 858 723 | ultrafloor.com

ULTRAfloor®

NEW PARTNERSHIP TO SAVE LIVES

National Precast is delighted to partner with Corporate AED Solutions with an initiative that could save even just one life.

According to Ben Cannon, Managing Director of Corporate AED Solutions, sudden cardiac arrest is the largest cause of death in Australia, but workplace defibrillators can make a huge difference to survival rates.

National Precast has welcomed Corporate AED Solutions as an Association Industry Supplier Member and will be making available its defibrillator kits to members at a discounted rate.

CEO Sarah Bachmann is enthusiastic about the initiative.

"Many of us had kids singing along to the Wiggles in the '90's and I for one was shocked, yet relieved to hear of Greg Wiggles' life saving experience," she commented.

"I saw a Corporate AED post on LinkedIn and thought we must get on board with this. In my view, every factory and every office needs

a defibrillator. The cost is after all, insignificant compared with the value of a life lost".

Sudden cardiac arrest claims the lives of around 30,000 Australians each year – killing more people than all cancers combined. And yet, Australia has one of the lowest penetration rates of defibrillators in the world.

"We are more than 500 times more likely to die of a sudden cardiac arrest than in a fire," says Ms Bachmann.

"While we've seen legislative change mandate smoke alarms and fire extinguishers, sudden cardiac arrest is yet to prompt a similar response."

In establishing Corporate AED, Mr Cannon's passion is personal - he lost his father to sudden cardiac arrest years too early.

"We look forward to educating the Association's members on AEDs and offering them high quality AEDs and the confidence they need to use them," Mr Cannon added.



Ben Cannon, Managing Director, Corporate AED Solutions

Bennett Equipment

QUALITY AND PERFORMANCE

Through its predecessor companies Hallweld Bennett and Bennett Engineering, Bennett Equipment has been leading the way in the manufacture and supply of high quality concrete batching equipment since 1957.

We manufacture and sell a wide range of equipment, including:

- counter current planetary mixers and skip loading hoists in sizes from 500 litres to 3,750 litres dry input batch capacity
- spare parts for our own and other manufacturer's mixers
- accessories for mixers including high pressure washing systems, cement and aggregate weight hoppers and screw conveyors

We are also the exclusive Australian agents for:

- Elematic equipment for manufacturing precast hollowcore flooring, precast walling and structural concrete elements
- Marcantonini Concrete Batching plants
- Leyco Chemische chemicals for removing and preventing the build up of concrete.

Bennett Equipment

18 Ninth St,
Wingfield
SA 5013

PO Box 289
One Tree Hill
SA 5114

Phone: (08) 82681199
Fax: (08) 82681888
Email: cwildman@benequip.com.au

Digitalization of the Engineering and Construction Industry

Achieving Project Value Improvement with an Informed Lifecycle

by Beow Kwan CHEW, Product Marketing Manager, FARO® Technologies, Inc.

Digital technologies have transformed entire industries in the last decade, impacting lives on both personal and professional fronts. Companies have had to reinvent themselves to evolve with the times, enhancing productivity, sustainability, and adaptability, all in order to stay relevant to their target audiences. Interestingly, however, firms within the Engineering and Construction (E&C) industry have for the most part bucked this trend and retained a majority of the trade's traditional methods.

According to the World Economic Forum, the E&C industry continues to operate today as it has for the past 50 years, heavily relying on manual labour, mechanical technologies, and legacy business models. The lack of productivity growth remains prevalent throughout the industry, leading to delays in the completion of projects and material wastages, which affect project bottom lines significantly.

The industry's underinvestment in digitalization has had a profound impact on productivity. Firms are held hostage to issues such as manpower challenges (with manual data tracking and verification) and the need for re-work due to an inability to accurately track project progression. That said, the increasing complexity of building designs coupled with a severe shortage of skilled workers have accelerated the digital push, especially for companies who want to stay relevant and profitable.

An easy way for E&C industry players to visualize benefits of digitalization is to picture the conventional construction life cycle taking on a digital form, where real-time information of a project is readily available to all stakeholders on a single platform. Right from design phases

through build and operate phases, a project is clearly laid out and its progress can be tracked. The data transparency enables teams to collaborate effectively, allow foremen to identify and manage any issues early, and helps owners monitor project safety. Based on The Boston Consulting Group's research, a full-scale digitalization across the E&C industry can generate an estimated value of \$1.0 to \$1.7 trillion in annual cost savings.

In the same vein, McKinsey & Company advocates improving the value of capital projects through more efficient spending. By integrating specific tools and practices, project owners have historically managed to realize better project value of more than 10% in savings — either by reducing the project's capital or operating expenditure; increasing its output; or accelerating its completion date so profits can be achieved earlier.

The next question, naturally, is whether there are solutions in the market to support the E&C industry's digitalization efforts.

ENABLING AN INFORMED CONSTRUCTION LIFECYCLE

Enter the idea of Traceable Construction™ by FARO, an approach that leverages the availability of accurate data throughout various stages of construction.

In the E&C industry context, the traceability concept functions rather similarly as it describes how one can follow through on a building's complete lifecycle — whether in the design, build, or operate phase. Across any building's lifecycle, there are five typical aspects to traceable construction that may be relevant at any given point in time.

1. On-site Capture

The basis of an informed construction lifecycle is accurate and reliable 3D data. Today, there are ultra-portable laser scanners and intuitive data processing software that work seamlessly together to enable quick and easy acquisition and registration of point cloud data. Project owners and managers have the option of choosing between terrestrial capture, mobile capture, and airborne capture for various applications.



Digitalization of the construction life cycle allows project owners

2. As-built Model & Design

By capturing as-built conditions, stakeholders can ensure a traceable conversion of scan data into BIM designs, for further planning and design of building projects based on the context of reality. High-speed, high-fidelity laser scanners, coupled with suitable processing software, enable fast and efficient creation of 2D-, 3D-, and BIM models that can be fully integrated into major Autodesk Building design systems.

3. Design Layout

Conversely, subcontractors can employ laser projectors to visualize designs from CAD plans and models on real objects. This facilitates the prefabrication of components; increases the precision of installation and assembly; and allows users to identify deviations from CAD plans onto components (e.g. display of unevenness in the floor).

4. Quality Control

To ensure continuous quality control on construction sites, workflows need to quickly and precisely record current status, compare the status-quo with CAD plans, and report any deviations. Foremen and site managers can rely on laser scanners to perform immediate, real-time build, and verify analysis throughout the entire project to improve efficiency, shorten timelines, and reduce material wastage.

5. Data Connect & Share

With cloud-based hosting solutions, project participants can share scan data easily and securely on standard file types and widely used platforms. The 'single source of truth' enables transparency and traceability on project progression at any stage.



Powering a Sustainable Future

informit

Did you know you can access the latest issue of *Construction Engineering Australia* via Informit?

The Informit Engineering Collection is an ever expanding resource covering aspects of municipal engineering – urban management and planning, civil engineering and construction, environmental management, planning issues and traffic management. The database offers an extensive variety of resources including journals, trade publications, reports and conference proceedings.

The Collection guarantees quality through partnerships with peak professional bodies including Engineers Australia and the Institution of Professional Engineers New Zealand, as well as Content Providers including EPC Media Group.

The Informit Engineering Collection delivers hard to find content designed to complete and complement all your construction engineering requirements.

Other key titles published by EPC Media include:

Highway Engineering Australia
Waste + Water Management Australia

Request a quote
or free trial via
www.informit.org/trial-and-quote



informit

Research for your
global future



REALIZE GREATER VALUE WITH TRACEABLE CONSTRUCTION™

Within the Traceable Construction framework, there are several practical ways that project owners can seek to realize tangible value improvement. Some applications that further elaborate its value include:

Application 1: Improving Construction Quality and Reducing Re-work

With traditional construction methods, site managers primarily record data with pen and paper. In these scenarios, the information tends to be outdated and issues are typically uncovered only at a later stage. This then results in the need for re-work and material wastage, and causes a delay in timeline as well as a decline in efficiency.

In comparison, with 3D digital methods, engineers and site managers can rely on laser scanners to capture a construction site completely and precisely. This real-time digital data can be continuously monitored and analysed using data processing software, allowing any defects or non-conformity to surface more easily and quickly, which makes it possible for problems to be resolved earlier.

Application 2: Enabling Fast and Precise Assembly Without Templates

Using a 3D laser projection system, fabrication shops can speed up the assembly workflow for structural and prefabricated elements. Design data can be projected on to building components to

enable large-scale laser guided assembly, offering a quick and accurate way to position these elements. It also eliminates the need for manual measurements and physical templates, which optimizes the use of manpower, time, and budget.

Application 3: Maintaining a Clear Overview of As-Built Data Throughout Project Duration

Complete, efficient, and accurate documentation of construction projects carried out at various stages of the construction process adds value to the delivery process and to the 'as-built' dataset. But even more valuable is the use of laser scanning in building supervision.



Continuous construction verification allows managers to spot any critical issues and make quick, informed decisions to move the project forward.

Timely monitoring of construction progress is ensured by the rapid recording of construction work. The data collected supports the precise positioning of formwork in concrete and columns in steel

construction. In addition, it also serves to control construction work and to record progress, structural damage, and health and safety compliance.

The E&C industry is now at the cusp of a new era. Reliable integrated solutions like FARO laser scanners and software platforms readily offer companies the opportunity to turn things around and implement digital strategies to their processes quickly and easily. Chances are, the firms who do so will likely emerge as leaders and have tangible first-mover advantage results to show for their efforts.

References

1. World Economic Forum, Shaping the Future of Construction: Future Scenarios and Implications for the Industry, March 2018
2. The Boston Consulting Group, Companies in the Engineering and Construction Industry Must Act Now to Avoid Future Disruption, 5 June 2018
3. McKinsey & Company, Capital project value improvement in the 21st century: Trillions of dollars in the offing, August 2018

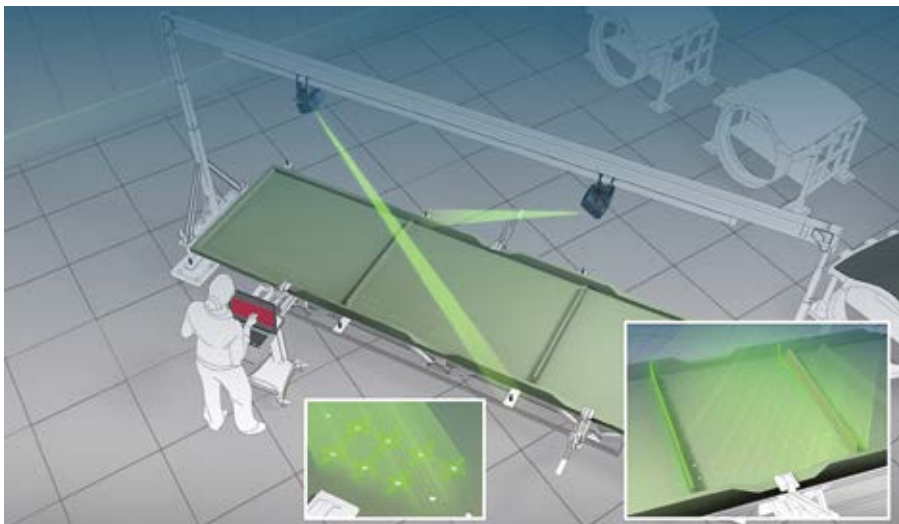
ABOUT FARO

FARO is one of the world's most trusted sources for 3D measurement and imaging solutions. The Company develops and markets computer-aided measurement and imaging devices and software for the following vertical markets:

- **3D Manufacturing** - High-precision 3D measurement, imaging and comparison of parts and complex structures within production and quality assurance processes
- **Construction BIM** - 3D capture of as-built construction projects and factories to document complex structures and perform quality control, planning and preservation
- **Public Safety Forensics** - Capture and analysis of on-site real world data to investigate crash, crime and fire, plan security activities and provide virtual reality training for public safety personnel
- **3D Design** - Capture and edit part geometries or environments for design purposes in product development, computer graphics and dental and medical applications
- **Photonics** - Develop and market galvanometer-based laser measurement products and solutions

FARO's global headquarters is located in Lake Mary, Florida. The Company's European regional headquarters is located in Stuttgart, Germany and its Asia-Pacific regional headquarters is located in Singapore. FARO has other offices in the United States, Canada, Mexico, Brazil, Germany, the United Kingdom, France, Spain, Italy, Poland, Turkey, the Netherlands, Switzerland, India, China, Malaysia, Thailand, South Korea, Japan, and Australia.

For more information visit: www.faro.com/sg



3D Laser Projection Systems allow workers to conduct large-scale laser guided assemblies, without the need for physical templates.

Be Inspired... with abilox®



Why have plain, drab and uninspiring uncoloured concrete, asphalt and mortars, when you can take your project to the next level with high quality abilox® UV resistant mineral oxide powder pigments from Ability Building Colours?



Available in a choice of over 70 standard colours OR in your own custom colour, abilox® is ideal for use in premixed concrete, asphalt, mortars, paints, surface coatings, caulks, sealants, applied finishes and a range of other construction products - delivering extremely high quality, consistent, reliable and permanent colours that won't fade or degrade.



Call us today on: 1800 337 324 (Toll Free)

Ability Building Colours
133-135 Northern Road
West Heidelberg
Victoria 3081

Postal address:
PO BOX 391
West Heidelberg
Victoria 3081

P: 03 9457 6488
F: 03 9458 4683
E: service@abilityproducts.com.au
www.abilityproducts.com.au



ONLY WHAT YOU WANT...

and nothing that you don't!



When it comes to digital subscriptions, **WHAT YOU DON'T GET** is as important as what you do get!

When you subscribe to Construction Engineering Australia online **YOU DON'T GET:**

- JUNK EMAIL
- SPAM ADVERTISING
- UNWANTED EDM'S
- 3RD PARTY EMAILS

WHAT YOU DO GET:

A single email notification, 6 times per year, to let you know your new issue is ready to download or view online... **THAT'S ALL!**

What's more, our digital subscriptions are **100% FREE!**

All of data is managed in-house and **WE NEVER** sell, rent, borrow or distribute any subscriber data - including email addresses - to anyone... **EVER!**

**UNWANTED
EDM'S**



**THIRD PARTY
EMAIL**



SUBSCRIBE TODAY! www.epcgroup.com/subscribe



Three ways to deliver efficiency across the capital asset project delivery lifecycle

by Geoff Roberts, Director of Energy Industry Strategy, Oracle Construction and Engineering



The utilities sector is dominated by discussions of smart cities and their future needs. For Australia, its long-term prosperity is linked to the performance of our cities, where 80 percent of Australia's population growth will occur in our five largest cities – Sydney, Melbourne, Brisbane, Perth and Adelaide. With a forecast of an additional 10 million to Australia's current population by 2043, the needs and requirements of our planet's megacities is primed to increase exponentially over the next few decades.

With so much focus on changing the way cities operate – from the way energy for homes and businesses is provided and billed, to the new demands on the grid as urban areas become kitted out with increasingly sophisticated and energy-hungry technology – the time has come for energy infrastructure, in particular, to react quickly to the new demands being placed on them.

To do this, energy providers need to review their capital assets across the entire portfolio to make sure they're set up to deliver on the power needs of today, and the future. From empowering employees with better project management, minimising risk during dreaded outage events, and managing decommissioning projects, technology will sit at the heart of any positive change.

POWER TO THE PEOPLE WITH PROJECT MANAGEMENT

Project management is often lamented as one of the biggest inhibitors to energy site efficiency. Projects can become weighed down by dozens of key documents, spread across a variety of key stakeholders and disparate divisions.

Technology that can provide full visibility on project data, regardless of location, is critical to working more productively. Gone

are the days when IT teams would be forced to manually install software on individual staff members' computers or laptops – the cloud has given workers access to real-time project information anytime, anywhere.

This also gives energy site operators real-time visibility and control across all grid and pipeline assets, on a single platform, which means workers can deliver quality project schedules, maximise resource capacity and minimise project risks.

“Gone are the days when IT teams would be forced to manually install software on individual staff members' computers or laptops – the cloud has given workers access to real-time project information anytime, anywhere.”

SOLVING THE STO DILEMMA

Across the energy industry, STO events often are not optimally managed, making them a needlessly high contributor to a site's non-availability, risk level, and cost. A

typical item list, which traditionally runs at about 3,000 separate items, can quickly escalate into 150,000 individual jobs, or tasks – each with its own stakeholders, compliance requirements, and third-party suppliers.

This implies that the leveraging of technology is critical to effectively support outage management, tracking fundamental activities and deadlines during each phase of the outage via monitoring systems. It also makes it infinitely easier to ensure management buy-in with automated scope capture, challenge, and approval processes. For a utility business, scope is sacred, so they need to ensure they're mapping any approved changes back to the initial and agreed upon business objectives.

Taking a holistic approach to data management is another way to execute STO events more effectively. A centralised platform for project management means teams from across the organisation can fastidiously track their work in more collaborative manner.

For example, possessing the ability to oversee scope across its entire lifecycle – including all estimates, reviews, approvals and any changes to the overall scope regarding resources and schedule – means all stakeholders involved, especially management, can make effective decisions. Having a tighter scope management and a quicker response strategy can benefit overall turnaround success by up to 20–25 percent.

Most crucially, these integrated tools can be applied quickly, with minimal disruption, and start delivering almost immediate gains.

OWN DECOMMISSIONING PROJECTS

For Australia's oil and gas industry, which is nearly 100 years old, it is easy to forget that many of its assets are reaching the end of the lifecycle. Currently it is estimated that the cost of decommissioning Australia's oil and gas infrastructure is estimated at more than US\$21 billion over the next 50 years.

Extraordinarily, only around 23 percent of utility companies have a plan in place for

decommissioning their assets. Therefore, it is critical that managers possess visibility and invest into the resource workload to establish effective procedures for decommissioning their assets. Again, centralised data repositories are key – essentially playing the part of an extremely sophisticated knowledge management tool, capturing and storing the information needed for decommissioning.

What's more, with this real-time access and visibility, risk information can be fed seamlessly into project plans, meaning internal and external stakeholders can look ahead and uncover potential issues before they compromise any decommissioning work.

As our cities become smarter – with the rise of electric cars, smart devices and connected hubs – the demand for energy will only increase. As a result, there will be growing pressure on the grid over the coming years which means utility companies that don't act on the reliability of their site now and start adopting the right technologies, will risk suffering in the near future.

SUBSCRIBE



YES! I wish to receive a print subscription to
CONSTRUCTION ENGINEERING AUSTRALIA

Within Australia (prices include GST)

- ☐ \$77.00 - 1 year, 6 issues
☐ \$135.00 - 2 years, 12 issues
☐ \$195.00 - 3 years, 18 issues

Overseas Rates

Asia Pacific

- ☐ \$AUD 120.00 - 1 year, 6 issues
☐ \$AUD 210.00 - 2 years, 12 issues
☐ \$AUD 295.00 - 3 years, 18 issues

All other countries

- ☐ \$AUD 145.00 - 1 year, 6 issues
☐ \$AUD 255.00 - 2 years, 12 issues
☐ \$AUD 365.00 - 3 years, 18 issues

Please find enclosed my cheque/money order for \$ _____

Payable to **Editorial and Publishing Consultants Pty Ltd** OR please charge my

☐ Mastercard ☐ Visa ☐ Amex

Card Number: _____

Cardholder Name: _____

Expiry Date: ____ / ____ Signature: _____

Name: _____

Job Title: _____

Company: _____

Address: _____

Suburb/Town: _____ Post Code: _____

Phone: _____ Fax: _____

Email: _____



Editorial and Publishing Consultants Pty Ltd • ABN 85 007 693 138 • PO Box 510, Broadford, VIC 3658
 Telephone: 1300 EPCGROUP (1300 372 476) • Fax: (03) 5784 2210 • Email: subs@epcgroup.com

Whatever your line marking or traffic management requirements, A1 Roadlines has the equipment and expertise to meet your needs.

QUALITY

EQUIPMENT



A1 ROADLINES

SUPPORT

SERVICE



THE EQUIPMENT YOU NEED – THE SERVICE YOU EXPECT

A1 Roadlines Pty Ltd | 89 Rushtdale Street, Knoxfield, Victoria 3180 | www.a1roadlines.com.au

P: 1300 217 623 (A1ROAD) | F: (03) 9765 9499 | E: sales@a1roadlines.com.au

SHANDYING...

**YOU WOULDN'T STAND FOR IT WITH YOUR BEER...
SO WHY STAND FOR IT WITH YOUR STEEL?**

Are you getting what you ordered? (and what you PAID for?)
Does ALL of the steel you're receiving comply with the right Standards?

The problem of mixed supply (or as it's more commonly known, 'shandyng') can have serious consequences – even if you're specifying construction steels to meet Australian and New Zealand Standards.

Shandyng can occur when conforming supply is ordered, but only a portion of the product supplied is sourced from ACRS Certified suppliers (and the rest is sourced from somewhere else). Using non ACRS Certified steel can leave you with non-compliant construction steel... and the risks that come with that.

By providing effective continuous review of both the manufacturer and the fabricator/processor, ACRS 2-stage steel certification scheme and the new ACRS traceability scheme play a major role in reducing the risk of shandyng on your project.

Talk to us TODAY about how ACRS Certification gives you confidence in your steel supply.



www.steelcertification.com

Ph: (02) 9965 7216 | E: info@steelcertification.com

ABN: 40 096 692 545

ACRS - Independent, Expert Third Party Certification & Verification of Reinforcing, Prestressing and Structural Steels for Compliance with Australian and New Zealand Standards