

Condor Tower declared overall winner at engineering excellence awards

Condor Tower won the overall award at the 2010 WA Engineering Excellence Awards announced in Perth on 18 September.

Constructing the innovative mixed-use building involved adding 18 storeys to an existing abandoned 10-storey building in St Georges Tce.

The project, which was carried out by engineering consultancy Pritchard Francis Pty Ltd, is believed to be unique in Australia and possibly worldwide. The 'piggy back' construction method required custom engineering solutions which resulted from four years of research at The University of Western Australia.

As a result, the innovative design converted the obsolete building into a new city landmark, and because the existing concrete structure was re-used, there was reduced concrete consumption as well as less building waste going into landfill.

Other major projects that won awards include the:

- Berth 10 at Fremantle Harbour
- Boddington gold mine
- Nangulu (Geraldton) wastewater treatment plant

There were eight category winners in the awards, which are featured on pages four and five of this newsletter.

Careful consideration showed that the overall winner displayed all the attributes of excellence in a more clearly recognisable manner than others.

"It distinguished itself to the extent a consensus was reached amongst the judges



Above: Condor Tower, submitted by Pritchard Francis Pty Ltd, won the overall award as well as the Infrastructure & Building AND Innovation & Development Categories at the 2010 WA Engineering Excellence Awards

on its value as an example of the best in contemporary engineering practice," said Chief Judge Dr Doug McInnes FIEAust CPEng.

Also at the Engineering Excellence Awards, Graham Currie GradIEAust, an engineer with Lowes Churchill & Associates in Bunbury, won the 2010 WA Young Professional Engineer of the Year for his dedicated work in the community and

efforts to promote careers in engineering to students.

Allan Claydon MIEAust CPEng was announced 2010 WA Professional Engineer of the Year in recognition of his leadership and professionalism in the field of public works engineering.

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ENGINEERS AUSTRALIA
Western Australia Division

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Chartered Status recognised

At an Engineers Australia Certificate Presentation in September, members who had recently achieved Chartered Status were awarded their certificates by WA Division Director Janice Lake.

Also on the night, over 60 members either new to Engineers Australia or upgrading their membership were introduced to Engineers Australia, presented with their certificates and given the opportunity to network with colleagues.



Kim Chuan Khaw MIEAust CPEng



Eric Laval Yew Kion Lau Hing Fut MIEAust CPEng



Bu Keon Toh MIEAust CPEng



Jacobus Hendriekus Grové MIEAust CPEng



R P Lalith Premarathna MIEAust CPEng



Svetlana Khaykina MIEAust CPEng



Teck Eng Tan MIEAust CPEng



Paul Starling MIEAust CPEng

From the President

Engineering Education

Professor Tony Lucey FIEAust

Educating engineers is of paramount importance to the continued success of our profession and the practice of engineering. The expanding expectations placed upon engineers in their rapidly increasing role of ensuring the well-being of Society means that engineering education has to evolve. However, acquisition of the enduring principles and rigorous skills that define Engineering must continue. The changing characteristics of young learners and the knowledge-demands arising from an increasingly complex and geographically interwoven Society has created real challenges for the contemporary design and delivery of effective engineering education. Engineers Australia does vital work in this area and real progress has been made. To maintain this momentum requires increased dialogue, understanding, and collaboration between Industry and educators.

It is all too easy for end-users to criticise educators for the perceived quality, or lack thereof, in the new personnel they receive into their organisations. Engineering lecturers will complain that a high-school education is not what it was in their day. In turn, Industry is sometimes heard to say that the quality of engineering graduates has decreased over the years. All will probably aver that the current generation lacks the character and diligence of that which preceded it – that is, their own! Socrates bemoaned the intellectual withering and fecklessness of the youth of Athens, declaring that, on this account, civilisation had no future. Over the more than two-thousand years since, events have happily proved him wrong. What lies behind negativity is, most often, a tendency to fight against change as opposed to accepting that change is fundamental to the developmental process. Our role as engineers and educators is to work with, harness and guide change so that it yields improvements to Society and its communities.

What then are the changes, and their causes, that are most conspicuously underway? At the top-end of the engineering-education chain, Industry now demands graduates who not only have the fundamental knowledge and skills of engineering science but who also have of further set of so-called generic abilities that includes effective communication, team-working, commercial and project-management nous, engineering for sustainability, cross-cultural awareness and adaptability to name but a few. This is entirely understandable because engineers are no longer the 'back-room boys' of a generation ago. They now work across

engineering disciplines, collaborate with other professions and far more explicitly interact with the communities that Engineering serves.

This extended set of skills and capabilities is required because modern Engineering is no longer just reactive; it is increasingly adopting a leading role in the sustainable development of our communities and the shaping of our Society. While tertiary-level educators are responding to meet these needs they cannot be left to do it alone. It is therefore incumbent upon Industry itself to take on educational responsibilities by providing the opportunities for its personnel to continue on a journey of life-long learning. This is at its most evident in professional development programs and through the ongoing support of chartered status. The most motivating form of education is that which is contextualised by the environment in which it is applied. Such investment in an organisation's personnel brings long-term benefits to both the individual and the employer.

Universities and TAFEs/Polytechnics face the combined challenges of meeting the extended expectations of the employers of its graduates, retaining an essential focus on fundamental engineering science and technology, and adapting to changes in high-school education. There is an ever-reducing proportion of high-school students focused on the classical preparation for engineering study that is Mathematics, Physics and Chemistry. A modern high-school education, both in Australia and worldwide, is broader than a generation ago; specialisation comes later. This reflects the increased complexity of Society and the longer preparatory time needed to become a functioning citizen. Many students also wish to 'keep their options open' and thus choose to study subjects in both the Sciences and the Arts.

All of this might seem to spell decline for the future of engineering studies. However, the broader attributes now required of engineers can usefully build from an education that includes high-level non-engineering subjects. Furthermore, many Arts disciplines, such as English Literature, History and Geography, have adopted scientific methods that engender evidence-based reasoning, logic and structured thinking that we would recognise as foundational to a good engineering mind. More obviously, the introduction of the Engineering course of study in high-school is a positive development. Thus there is a valid, and perhaps increasing, pool from which higher-education engineering can draw; the big change is that the pool of potential future engineers is far more diverse.

There is good news in engineering education here in Western Australia. Our

universities and TAFE-Colleges are responding and adapting to the changes in employer expectations, student culture and a more diverse entry cohort. New infrastructure that enables this response is being put in place. This month will see the opening of University of Western Australia's Monadelphous Integrated Learning Centre and Curtin University's Engineering Pavilion Undergraduate Learning Centre while Edith Cowan University is building its Science and Engineering Centre. These types of facility herald student-centred approaches to engineering education. These impart the fundamental engineering science using learning techniques that can concurrently promote and develop generic skills such as team-work, project-management, and communications that are now so valued by Industry and the engineering profession. Additionally, the change in emphasis from transmission (passively absorb) to discovery (actively find) modes of learning is more attractive to contemporary students and, indeed, a more natural way of learning deeply and with enhanced retention. In parallel, curriculum development now uses a far more rational approach to the holistic design of engineering programs taking into account the development of the full range of knowledge and skills required by engineers.

Our times are uniquely characterised by rapidly changing expectations. A sea change in engineering education is underway that not only embraces what is studied, but also how it is studied and when it is studied. Engineers Australia plays an important part in overseeing, encouraging and facilitating this evolution. The range of its activities spans outreach work with schools to promote our discipline, formal accreditation of engineering courses to ensure standards and currency, implementing professional development programs and partnerships, mounting CPD events that enable continuous development, and, of course, the operation of the chartered-engineer award and its maintenance.

Engineering education is a shared responsibility for all of schools, colleges, universities, Industry and the entire engineering profession. It is up to all parties not to play the blame game but instead to work constructively together, with mutual support and integration, to cover the entire spectrum of engineering education that we have correctly identified as life-long learning.



WA Engineering Excellence Awards

Resource Development

WINNER

Boddington Gold Mine Expansion Project

AKER SOLUTIONS AUSTRALIA PTY LTD AND CLOUGH LIMITED | NEWMONT MINING CORPORATION

Recognised as an engineering feat, Newmont's Boddington Gold Mine represents a revolutionary approach to gold and copper production, employing grinding equipment never before used in the gold mining industry.

The project is the culmination of 10 years work and the contribution of over 12,000 individuals. At peak production Boddington Gold is destined to become one of Australia's largest gold producers.

HIGH COMMENDATION: CAPE LAMBERT UPGRADE

SUBMITTED BY: RIO TINTO IRON ORE | SINCLAIR KNIGHT MERZ



Infrastructure and Building

WINNER

Condor Tower

PRITCHARD FRANCIS PTY LTD

Condor Tower pushes the boundaries of building adaptability and sustainable design by demonstrating how obsolete structures with remaining design life and inherent strength can be recycled and transformed.

This project was also announced as Overall Winner. For more information please refer to page one.



Products and Manufacturing

WINNER

Mobile Mining Unit Plant (MUP)

RCR MINING | CLIENT – ILUKA RESOURCES | STRUCTURAL DESIGN SUPPORT – SINCLAIR KNIGHT MERZ | ELECTRICAL DESIGN – OVERFLOW INDUSTRIAL (OFI)

The innovative MUP incorporates an ore recovery and full in-pit primary processing unit and sophisticated relocation system. The advanced technology for the customised hydraulically driven track-module enables the 1000 tonne machine to raise and drive itself to the next mining position via remote control.

Delivered within nine months with an outstanding incident-free safety record, the key to the project's success was passion, innovation and team work.



Environment

WINNER

A NATURAL BIOLOGICAL REMOVAL SYSTEM FOR OXALATE

ALCOA WORLD ALUMINA

Alcoa's Technology Delivery Group has developed, installed and successfully commissioned a biological system which degrades oxalate, an impurity in the Bayer process, to sodium carbonate which can be re-used in the process.

This exciting new technology provides a number of significant environmental and cost advantages over traditional oxalate removal processes including reduced energy use and hence reduced greenhouse emissions.

HIGH COMMENDATION: THE ADVANCED SOLAR THERMAL INITIATIVE - ENGINEERS DRIVING CHANGE SUBMITTED BY: WORLEYPARSONS



Engineering for Regional Communities

WINNER

The Narngulu Wastewater Treatment Plant

WATER CORPORATION

An innovative wastewater treatment plant constructed by the Water Corporation at Geraldton has equipped the city to expand in its role as a hub for the mid west region's expected strong resources-driven growth.

The 'hybrid' plant incorporates cutting edge technology and other innovations that make it a highly useful new option for water industry planners while providing some important environmental benefits.

HIGH COMMENDATION - THE KIMBERLEY ECI GREAT NORTHERN HIGHWAY PROJECT
TEAM SAVANNAH | MAIN ROADS WESTERN AUSTRALIA | AECOM | BGC CONTRACTING PTY LTD
LAING O'ROURKE AUSTRALIA



Management of Engineering

WINNER

Berth 10 Reconstruction

THIESS GEORGIUO JOINT VENTURE | FREMANTLE PORTS | AECOM

The reconstruction of 52-year-old Berth 10, part of Fremantle Port's Inner Harbour Deepening and Berth Works Project, provided the unique challenge of constructing a new wharf deck whilst simultaneously demolishing the old deck structure in a working port environment.

Delivered using an Early Contractor Involvement method, the project's successful completion with no lost time injuries or disruption to port operations reflects excellence in the management of engineering.



Innovation and Development

WINNER

Condor Tower

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Small Company Projects

WINNER

MetroCount Mc5712 Timing Analysis System for Signalised Intersections and Railway Crossings

MICROCOM PTY LTD T/AS METROCOUNT | MAIN ROADS WESTERN AUSTRALIA

The recently released MetroCount MC5712 reports driver behaviour at intersections and level crossings, joining MetroCount's family of traffic management products designed and manufactured by MetroCount in Fremantle, Western Australia.

The MC5712 identifies problem intersections rather than just responding to traffic accident statistics. According to MetroCount CEO Mike Kenny, "There isn't another product in the world that delivers intersection data of this nature."



Honours and Awards

Young Professional Engineer of the Year W. Graham Currie GradIEAust

Graham Currie was announced the 2010 WA Young Professional Engineer of the Year at the Engineering Excellence Awards on September 18.

Graham Currie graduated from Dalhousie University, Canada, in 2008 with a Bachelor of Civil Engineering and now works for a local consulting firm in Bunbury. He has worked on a variety of projects including the Wyalkatchem Aerodrome and the obtainment of the ISO 9001 accreditation for his current employer Lowes Churchill & Associates.



Graham's interests outside of work include volunteering in the community and sailing. He has donated his time to several community and sporting groups in the South West, and in addition to this has taken a keen interest in promoting careers in engineering through Career Days and the Science and Engineering Challenge competition for high school students. His key message to students is "that if you work hard and become an engineer you can go anywhere."

WA Division President and Judging Panel member Professor Tony Lucey added, "He is a young ambassador for Engineering and its direct engagement with the community."

Professional Engineer of the Year Allan Claydon MIEAust CPEng

From amongst a highly distinguished field of nominations, Allan Claydon has won the 2010 WA Professional Engineer of the Year Award.

Allan Claydon commenced his engineering journey with a traineeship at Main Roads Western Australia in 1973. More than 35 years later he is now the Director Works and Services for the City of Mandurah.



Throughout this time Allan has demonstrated exemplary leadership and professionalism in the field of public works engineering and continues to play a pivotal role in the Institute of Public Works Engineering Australia.

He sees the engineering role within local government as vital to meeting the community's ongoing needs.

"This is engineering for the people and more often than not will be a legacy that will continue long after we have gone.

"It is grassroots engineering. It requires a team approach to achieve success and it is an environment where actions speak louder than words," said Mr Claydon.

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Georgiou

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Special Notices & Events

Vale

Donald Hector Aitken

AO, ISO, BE, Hon.DEng, FTSE,
Hon.FIEAust, FCIT, FAIM

It is with great sadness that we acknowledge the passing of Don Aitken, an Honorary Fellow of Engineers Australia.

Don was an Honours Graduate in Engineering from UWA in 1946 and the Foundation Chairman of the Engineering Graduates Association.

Don was an outstanding engineering leader who made a sustained contribution to engineering practice and learning in Western Australia.

He spent the majority of his career with Main Roads and was the Chief Engineer of the Main Roads Department before holding the position of Commissioner of Main Roads from 1965 to 1987.

He was also well known as a supporter of the University of Western Australia. Don was a member of the UWA Senate from 1967 to 1991 and served as Pro Chancellor before being appointed as Chancellor, a position he held from 1981 to 1990.

He was awarded the Order of Australia in 1988 for services to engineering and learning.

Don's achievements were recognised by his peers with his election as a Honorary Fellow of Engineers Australia in 1984, and the awarding of Engineers Australia's highest award, the Peter Nicol Russell Memorial Medal, in 1982.

Don was well known to many members of the WA Division of Engineers Australia and will be sadly missed.

International Engineers Group host inaugural event



The first International Engineers Group networking event was a success

The recently formed International Engineers Group held its first event, a networking evening with industry representatives, on 31 August.

The WA Division's membership growth over recent years has been underpinned by a large number of overseas qualified engineers following migration to Australia. The Division is aware of potential workplace and social difficulties facing overseas qualified engineers, particularly those for whom English is a second language.

The International Engineers Group has been formed within the WA Division to assist overseas qualified engineers, who have migrated to Western Australia, in making the most of their careers in the Australian engineering industry.

An enthusiastic crowd attended the first formal event for the WA Division International Engineers Group on Tuesday evening, 31 August. The room was full of lively conversation and the presence of a number of industry representatives

provided opportunities for attendees to discuss a range of workplace issues.

Namvar Yaghooti, chair of the group, and WA Division President Tony Lucey, spoke about this important initiative to support the career development of the growing number of overseas trained engineers coming to WA. The group will provide an opportunity for members to make contact with other engineers in an informal environment, and to identify issues in which Engineers Australia can assist through professional development sessions.

During the evening Craig Munsey from the Perth Institute of Business and Technology introduced the professional development series that he will be presenting over the coming months. The topics to be covered will include Workplace Culture, Business Communication, Health and Safety and Interview Skills and CV Preparation.

Thanks to everyone who has supported the formation of this special interest group and to our industry partners for their support.

Wahoo
PREMIUM ALE
It's a beer, not a fish!

Dates for your Diary

ENGINEERS AUSTRALIA
WA DIVISION NEWSLETTER

Date/Time	Host	Event & Venue	For more information
Thu 21 Oct 5:30 PM	Engineers Australia	Chartered Status Workshop Auditorium, Engineers Australia WA Division	Register Online: www.engineersaustralia.org.au/wa
Thu 28 Oct 9:00 AM	Society for Underwater Technology	Autonomous Underwater Technology - Subsea Solutions for a new Decade	Please contact Joyce Bremner on j.bremner@sut.org Tel +61 8 9446 9903
Thu 28 Oct - Fri 19 Nov	Engineers Australia WA Division	Science and Engineering Challenge Kalgoorlie, Geraldton, Australind, Mt Barker, Rockingham/Kwinana, Perth	Contact: Beatriz Clark bclark@engineersaustralia.org.au
Mon 8 Nov 8:00 AM	Concrete Institute of Australia	Durability: Principles for Practitioners National Seminar Series	Visit our website: www.engineersaustralia.org.au/wa
Thu 11 Nov 6:00 PM	Australian Geomechanics Society	50th Rankine Lecture - Stiffness at small strain - research and practice Speaker: Professor Chris Clayton, University of Southampton, U.K. Lecture Theatre Law 1.06 The University of Western Australia,	Visit our website: www.engineersaustralia.org.au/wa
Fri 26 Nov	Australasian Tunneling Society	Fremantle Prison Tunnel Tour Cost: ATS Members \$20 per person Non-ATS members \$59 per person	Visit our website: www.engineersaustralia.org.au/wa
Fri 26 - Sun 28 Nov	The Australian Earthquake Engineering Society	AEEES 2010 - Australian Earthquake Engineering Society's National Conference	Contact Winthrop Professor Hong Hao Tel: +61 8 6488 1825
Thu 2 Dec 6:00 PM	Engineers Australia WA Division	Engineers Australia Annual Dinner featuring the O. F. Blakey Public Presentation Competition	Contact: Fiona Thorniley fthorniley@engineersaustralia.org.au
12 - 16 Dec	Engineers Australia's National Committee on Applied Mechanic & the Australian Institute for Non-Destructive Testing (AINDT)	The 6th Australasian Congress on Applied Mechanics Perth Convention and Exhibition Centre	Visit the congress website at: www.acam6.org or email acam6@acam6.org
Wed 15 Dec 5:30 PM	Engineers Australia	Chartered Status Workshop Auditorium, Engineers Australia WA Division	Register Online: www.engineersaustralia.org.au/wa

Some event dates and times are subject to change. Please check our website www.engineersaustralia.org.au/wa/events for up-to-date information

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