

YEAR IN *review*

2009

ENGINEERS AUSTRALIA WA DIVISION



2009 WA Engineering Excellence Awards Presentation Dinner

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100

ENGINEERS AUSTRALIA WA DIVISION 100th ANNIVERSARY
Looking forward. Looking back.



ENGINEERS
AUSTRALIA
Western Australia Division

President's Report



Chris Fitzhardinge FIEAust CPEng

2009 Engineers Australia WA Division President

2009 commenced with a great deal of apprehension about the impacts on our members and on our economy of the Global Financial Crisis. Western Australia was fortunate to have continuing engineering projects, strong population growth and a link to the massive Chinese stimulus funding which ameliorated the shock. In less than a year business confidence has recovered and we seem to have avoided the significant unemployment that was widely predicted. The Global Financial Crisis did have impacts on sponsorship and on attendance at some events but overall the Division has responded to the challenge well.

It was a pleasure to be engaged with a wide range of activities that related to the year theme of "Looking Forward – Looking Back" and to be able to celebrate 100 years since the Institution of Engineers was formed in Western Australia. The profiling of the energetic and creative engineers of the past was balanced by future looking projects such as the impressive launch of the "Make It So" campaign and the thorough work on developing the National 2010 – 2015 Strategic Plan.

Strong growth in Qualified Members numbers continued in Western Australia breaking through the 7,500 level and sustaining an increase of around 30 new members each month. The high level of Continuing Professional Development activities meant that the West Perth Office was regularly hosting multiple events.

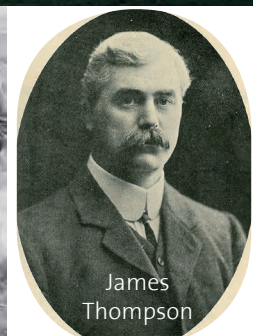
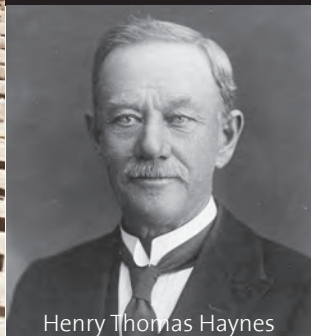
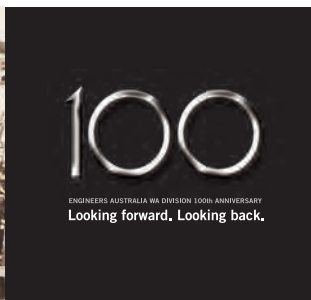
Regulation of the Engineering Profession reached a milestone with the release of a discussion paper and positive meetings to discuss how legislation could be introduced in Western Australia. Engineers Australia responded by supporting the introduction of nationally consistent legislation, in each State and Territory, governing the registration of engineers.

Highlights of the year included the introduction of the WA Division Excellence in Teaching Award, Ed Scull being awarded an Order of Australia Medal and the International Historic Engineering Landmark dedication ceremonies at Mundaring and Kalgoorlie. The Narrows Bridge received attention at a number of events as well as from the National President, Peter Godfrey, whose prominent Western Australian relation, Ernest William Clifford Godfrey, played a pivotal role in its creation. The Swan and Canning Rivers Bridges Tour during Australian Engineering Week was an outstanding success.

The quality of the Division's publications, ranging from the insert in the West Australian for Australian Engineering Week through the Monthly Newsletter to flyers supporting events continue to be of a very high standard.

During 2009 the new Western Australian Division Committee structure was fully implemented supported by the establishment of the Division Advisory Board under the enthusiastic leadership of Bob Broadway.

The Western Australian Division Office has been outstanding in their support of members and activities for members. All staff, ably led by the Division Director Janice Lake, play an important role in supporting the complex and challenging work undertaken by the Division and have contributed to the success of the many volunteers in running the wide range of events and activities for which the Division is renowned. The Engineering Excellence Awards, Engineering Week and the Science and Engineering Challenge maintained their impressive reputation with our profession and the community.



Director's Report



Janice Lake

Engineers Australia WA Division Director

For the first time Engineers Australia WA Division is publishing a "Year in Review" to replace the Annual Report. This Review will cover the calendar year of 2009, to align with the Division President's term.

An Annual Report is published for the whole of Engineers Australia, and there is no requirement for the WA Division to produce one. The "Year in Review" is not an auditable document and therefore does not contain a full financial statement. It is designed to celebrate the achievements of the Division over the past year with contributions from the Director, Division President and various Groups.

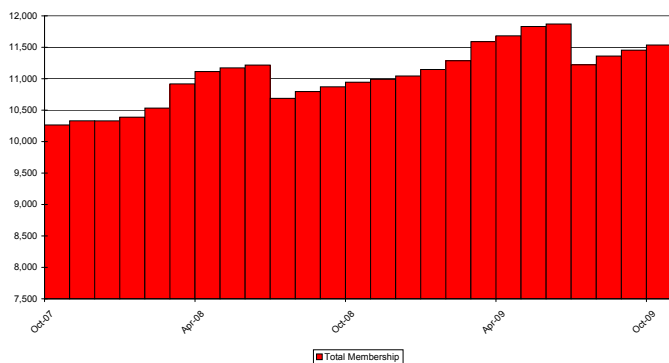
The Division and the Division President have contributed separately to the 0809 Engineers Australia Annual Report which was presented at the AGM held in Canberra on 26 November 2009.

The following report provides a brief description of the outcomes for this year.

Membership

WA Division membership continues to grow at a pleasing rate. There was a 5.62% increase in paying members over the last 12 months and a 6% increase in total membership. Almost half of our members are under 30 years of age, and women make up 12% of the Division membership. We now have a total of 11,537 members as at 31 October 2009.

Total Membership



Finance and Sponsorship

The Division ended the financial year 0809 with a surplus which was made up of the profits from fee paying activities during the year. The main contribution to this was the National CELM conference held in September 2008.

Overall sponsorship and other income from activities of the Division made up almost 40% of Division's income and the Division continues to rely heavily on sponsorship support from industry.

2009 is the final year of the Division's three year sponsorship agreements with our Partners and Sponsors. The Division has benefited greatly from this support and the long term relationships that have been formed with the companies. We look forward to working with those who are continuing with us and welcoming new companies who are joining as Partners and Sponsors for 2010/11.

Governance

During 2009 the new Division Committee and the Division Advisory Board (DABWA) structure had their first full year of operation. Both bodies have met regularly and have achieved their goals for the year. Activities undertaken by DABWA members included governance training; meetings with Directors from National Office and the National President.

Staff and members have worked with National Office on a number of governance related projects including the new Strategic Plan, the Management Information Systems Review and the review of the Bye Laws.

Significant Achievements

2009 is the centenary of formation of the Institution of Engineers in Western Australia in 1909. The Division celebrated this in style with articles about eminent WA engineers published in the monthly newsletter and a range of engineering heritage related events throughout the year. The most notable was the recognition of the Goldfields Pipeline as an International Historic Civil Engineering Landmark by the American Society of Civil Engineers.

Australian Engineering Week for 2009 took a theme of education and training, to encourage more students to undertake engineering studies and to raise awareness in the general community of the vital role that engineering plays in society.

Activities held during the Week included two student information sessions with young engineers; a public forum on electricity options for the future; public bus tours of the bridges of Perth and Fremantle with the Engineering Heritage Group, and the presentation of the inaugural teachers' award for excellence in engineering related subjects. The Australian Engineering Week liftout, published in the West Australian, also made a great contribution in increasing the public's knowledge about the profession.

The Schools Program increased in capacity this year and included the EngQuest program for primary schools; the Science and Engineering Challenge for year 9 students; presentations at schools throughout the year by young engineers; activities in Geraldton and Bunbury and certificates of achievement for year 12 students.

The Science and Engineering Challenge in particular increased its reach, with competitions held in Geraldton, Rockingham, Bunbury and Perth. Over 2,000 students from 70 high schools participated

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and more than 200 volunteers gave their time to assist.

Media Exposure obtained by the Division this year was wider and more effective than in the past. Television, radio and press articles covered Australian Engineering Week events; Engineering Heritage activities; the Engineering Excellence Awards and the Science and Engineering Challenge.

The 2009 Engineering Excellence Awards once again provided an opportunity for industry to showcase their projects and did not disappoint. The 32 entries covered engineering from the largest to the more niche markets. The Awards presentation evening on 12 September was the highlight of the engineering calendar.

Continuing Professional Development (CPD) delivery by all the units of the Division, including Young Engineers, Women in Engineering and CELM, maintained its high quality and relevance. More than 9,000 people attended sessions in 2009. There were over 230 events, providing in excess of 300 hours of CPD.

The auditorium continues to be in high demand with sessions held on most evenings. Fee paying seminars, conferences and an increased offering from Engineering Education Australia (EEA) added to the mix of CPD available to members.

Providing effective CPD to members in regional areas continues to be a challenge for the Division and more effort is needed in this area. Whilst more presentations are now available electronically, members particularly value the opportunity for face to face meetings.

There was interest in the formation of a Migrant Engineers Group and for the Civil College to have a branch in WA. Planning for both

groups was undertaken in 2009.

The Division continued its **Charitable Support** for the Breast Cancer Foundation of WA through the Purple Boot Campaign and Purple Bra Day.

Several Public Policy issues have been in the spotlight this year including the Discussion Paper addressing the proposed regulation of Engineers in WA and the next round of Infrastructure Report Cards being undertaken around Australia and in WA in early 2010. The National President and the Transport Panel met with Minister for Transport in May and the Minister for Energy and Training spoke at two events during Australian Engineering Week.

The Honours and Awards for members of the Division was highlighted by the awarding of an Order of Australia to Ed Scull OAM for his work in Biomedical Engineering.

Individual Awards were presented for Young Engineer and Professional Engineer of the Year and a number of student medals were awarded for excellence in undergraduate engineering studies. In addition the Division awarded three Engineers Australia medals in recognition of exceptional service to the Division.

The inaugural Teachers Award was presented for excellence in teaching in engineering related subjects in high school. Certificates of achievement were also awarded to a number of year 12 students who obtained high marks in a range of subjects.

The Division continues to grow in size and influence and is well placed to maintain excellence in service to its members through a wide range of activities.

Professional Development Program

By **Alexandra Sparvell**

National Industry Manager, Engineers Australia

The Professional Development Program (PDP) momentum continued in WA throughout the year. The new PDP national operational process, based on WA operations, was implemented during 2008-09. The focus was to deliver information to senior engineers on Chartered Status and the PDP process to raise the profile of Chartered Status throughout a PDP organisation and to assist the senior engineers to mentor their graduates towards Chartered Status. This resulted in an increased uptake of Chartered Status at higher levels within the PDP organisations and contributed to an increase in activity within the PDP. With this continued focus this momentum is set to continue through 2009-10. Key achievements in Western Australia include:

- In 2008-09, over 2,400 members and prospective members have attended a presentation on Engineers Australia and Chartered Status
- 1,261 participants from 91 companies representing 20% of all PDP participants nationally
- 62% of new Chartered Engineers came from PDP companies in 2008-09
- 85% of Chartered Interviewers are from PDP companies
- 11 New PDP agreements were signed during 2008-09
- The highest Career Episode submission rate in the country with 758 CERs submitted in 2008-09

2009 Division Committee

Division President and Congress Representative

Chris Fitzhardinge FIEAust CPEng

Past President and Congress Representative

Lorie Jones FIEAust CPEng

Deputy President

Prof. Tony Lucey FIEAust

Vice President

Barry Tonkin FIEAust CPEng

Advisory Board (DABWA) Chairperson

Bob Broadway FIEAust CPEng

Women in Engineering Representative

Melissa Marinelli MIEAust

Young Engineers Representative

Andrew Dedman GradIEAust

Engineering Techs/Assocs Representative

Will Neethling TMIEAust CEngT

Committee Member

Prof. Mark Bush FIEAust CPEng

Committee Member

Helen Pedersen FIEAust



Science & Engineering Challenge



Presentation of the inaugural Teachers Award



Purple Boots Women in Engineering Cocktail Party



Durack II – Excellence Awards



Top engineers support the Purple Bra day



Public forum on WA's electrical energy future



Kalgoorlie Pipeline – Historic Landmark Ceremony



Young Professional Engineer of the Year



Young Engineers Quiz Night Winners



Angel Project – Overall Winner of the WA Engineering Excellence Awards



Panel Reports

Australia Geomechanics Society

By Dr Fiona Chow FIEAust CPEng

The Western Australia Chapter of the Australian Geomechanics Society (AGS) comprises over 200 members representing every aspect of Geotechnical Engineering and Engineering Geology.

We have had an active year with 14 events, accruing more than 2,000 CPD hours. Highlights include a Soil and Rock Logging Course and field trip, five presentations by overseas speakers including the USA's prestigious Terzaghi Lecturer, and talks on projects ranging from an underground station in South Africa, pipeline in Panama, retaining walls in London, slopes in Switzerland and China and offshore structures on the North West Shelf of Australia. Local projects include the Condor Tower (held jointly with the Structures Panel) and the new Perth-Bunbury Highway. Fierce competition of a high standard was seen in our two annual events for young members: the GFWA competition for undergraduates and the Baden Clegg competition for under-35's. WA was honoured to receive the AGS Trollope Medal (awarded to Dr Xiantao Xu) and the AGS prize (awarded to Eric Hudson-Smith and Michael Grincer).

Behind the scenes, the West Australian Pavement Group has been working hard in collaboration with Main Roads WA to resolve several on-going technical issues. Improvements to the AGS borehole database are underway. Papers are regularly submitted to and reviewed for the Australian Geomechanics Journal.

Australasian Tunnelling Society

By Eric Hudson-Smith MIEAust

Since last year the WA Chapter has held its AGM in May with a technical session on the Beaconsfield mine tunnel collapse – “A review of findings following the Anzac Day 2006 seismicity and rockfall” by Peter Mikula, with 35 attendees. On 17 September we had a technical talk by Brian Smith on “Use of the Underground Space – Key Planning issues for Bus Stations at Christchurch NZ and King Street Wharf, Sydney” attended by 30 persons.

Significant ongoing WA projects involving tunnelling include:

- > Tunnelling on the Alkimos Wastewater Project
- > The second Desalination Project in at Binningup
- > The Perth Airport Rail Link Study
- > The PTA Hub Project

Electrical Engineering Panel

By Tiina Ratamo FIEAust CPEng

The WA Electrical Engineering Panel (EEP) continues to be active and meets on the first Tuesday of each month. The committee continues to have a core of experienced members, some of whom have been on the committee for many years, and some new members, including a student member.

Dan Norton has been co-ordinating the JEEP program for Engineers Australia for over a decade, unfortunately however the start of the year saw number of resignations and changes of

panel members. With Dan's tireless efforts the JEEP program has delivered over 300 CPD hours.

Annual Prize Giving, including the EEP Medals named after prominent West Australian Engineers, to the best Student in UWA, Curtin, ECU and Murdoch was successfully concluded for 2009.

Conference proposal for the “Earthing and Lightning protection” seminar, scheduled for Q2 2010, has been submitted to the Division office and the planning committee is preparing to call for papers before Christmas.

Engineering Heritage Panel

By Don Young FIEAust

There were three main activities organised by the panel during 2009 :

Engineering Week Tour

Two conducted bus tours of six of Perth and Fremantle's major bridges were organised for 120 members of the public on August 5. A booklet was provided to all attendees describing the planning, design and construction details of the Causeway, first Narrows, Canning, Mt Henry, Stirling and Fremantle road bridges. Engineers who had been involved in the design or construction of the bridges accompanied the participants and explained some of the finer points of the structures. A repeat tour was held on October 1.

Goldfields Water Supply ASCE International Historic Civil Engineering Landmark

Ceremonies were arranged at Mundaring Weir on October 20 and Kalgoorlie October 21 when plaques presented by the American Society of Civil Engineers to the Water Corporation of Western Australia were dedicated to commemorate the landmark awards, only the 47th such project in the world to be so recognised.

Narrows Bridge 50th Anniversary

On November 13 at the West Perth auditorium the 50th anniversary of the opening of the first Narrows Bridge was commemorated by a presentation when four speakers who had been involved in the construction of the original bridge described various aspects of the design and construction.

Mechanical Branch

By Mike King MIEAust

The Mechanical Branch has had a bumper year, offering 14 first class technical presentations to aid members in their continuing professional development. Strong ties with kindred organisations such as IMechE, ASME and the Royal Aeronautical Society resulted in several jointly organised presentations, allowing world class speakers from Germany, Sydney and Melbourne to visit the WA division at no additional cost to members. Committee discussions were focused on the state of university education in WA, leading to the instatement of committee members on the industry Advisory Boards of WA's leading universities.

Society of Building Services Engineers

By Roy Forbes MIEAust CPEng

Our AGM was held in February and resulted the proposed succession for change of the 'guard', including two new members

of the Committee. The first task of the Committee under the chairmanship of Terry Spiro was to review the future directions of the Society. This involved the development of a draft Constitution and an involvement of the committee, through an allocation of duties by the chairman, to improve the activities of the Society and thereby encourage a wider membership. The draft Constitution project is still in progress and requires ratification by the WA Division.

The activities for the year have included a number of very interesting and topical Technical Sessions held mainly in the EA, Murray Street Auditorium. These activities have been arranged through the association and joint cooperation with our committee member who is also a member of the Chartered Institution of Building Services Engineers (CIBSE). Attendances have been very good and on average between 30 – 40 in the auditorium.

Some sessions have involved visits to site works of projects either completed or still under construction. Examples of these were Bishop's See and Durak 2 sites. Technical Sessions of particular interest included: Lighting Controls in Commercial Buildings, Greenstar Categorisation of Commercial sites, and latterly a "Monodraft" approach to building design.

Software Engineering Forum

By Dr Geoffrey Roy FIEAust CPEng

The SEF is a group of senior and experienced software managers and developers with a common interest in increasing their understanding of software development processes and methodologies, and in sharing their own experiences. It meets monthly to provide a forum for discussion around a nominated topic that will be introduced by one of its members. The Forum's scope is Software Engineering, and the improvement of software products in meeting their design goals.

During 2009 some of the more interesting topics included Safety critical software, Evolutionary algorithms, Applying LEAN methods, Software process models and process dynamics

For 2009, the annual SEF workshop focused on Software Risk Management was run in July. This was a one-day symposium with seven invited presenters covering a range of topics, including: risk theory, applicable standards, domain applications and the practical aspects of risk management in a software development environment.

Structures Panel

By Helen Pedersen FIEAust

2009 has been another active year for the Structures Panel. 9 technical sessions were held in the auditorium at Engineers Australia with steady attendance of 40 or more people per session.

Most popular was the April seminar on the Condor Tower redevelopment which attracted 134 attendees to hear about underpinning of the foundations and structural strengthening required to increase the height of the existing building at 22 St Georges Tce. A UWA student project to monitor and analyse the load sharing between the old and new columns in the structure was also discussed. The auditorium was also packed to capacity

for the September seminar on Progressive Collapse Analysis, looking at analysis methods for offshore platforms. 8 additional technical presentations were held at City West in conjunction with the Concrete Institute of Australia.

Four Structural Steel Fabrication and Welding courses (21 hours training) were held in conjunction with the Australian Steel Institute including one held in Bunbury. These proved to be very popular and were quickly booked out.

Thanks go to Rob Rowbottam who is stepping out of the chair after 3 years at the helm. Welcome to incoming panel chair Harry Backes.

Transport Panel

By Bob Peters FIEAust CPEng

The Transport Panel was very active in 2009. It convened 11 technical sessions, including some with other groups. The events were diverse, covering road, rail, water and air transport. Attendance at events was typically more than 50 people. The Panel also met with the Minister for Transport and made a submission to the Fremantle Ports Optimum Planning Group.

The year's events included talks on major transport projects such as the Oakajee Port and Rail Project and developments at Perth Airport. In the roads area traffic control was discussed along with community views on road safety. The future of the grain freight rail network was presented as was the situation with cycling in Perth. Senator Scott Ludlum talked about public transport and green matters and Professor David Hensher informed us on road pricing and road funding; Professor Peter Jones talked about street planning and the need to get the right balance between the need for the 'link' and the need for the 'place'.

Special mention needs to go to Chris Fitzhardinge, Sarkis Petrosian, Jackie Wood, Mike Sjepcevic and Flori Mihai. Their efforts during the year were outstanding.

Young Engineers WA

By Janica Lukas GradIEAust

Young Engineers WA (YEWA) enjoyed another busy year in 2009 with events covering professional development, networking and technical sessions.

The first event for the year was a volunteer session specifically for those on the committee to increase their knowledge of their role and YE in broader terms, and in March, Young Engineers hosted Mark McCrindle, a renowned speaker on Generational Exchange for a networking sundowner. The first Young Engineers Cocktail Party was held in June for an end of financial year celebration and the Annual Young Engineers Quiz Night was held in August where 12 teams met for a battle of the brains with profits donated to Engineers Without Borders. Run in October, the Summit – held once every two years, was held at the Perth Convention and Exhibition Centre with over 100 participants registering to hear timely advice from industry leaders addressing the topics of Leadership, Contractor/Client Relationships and Sustainability. The much anticipated and final major event for the year, the Young Engineers Sports Day was held in November. Many thanks go to the over 20 active volunteers on the Committee for their time, passion and dedication in running these events for the broader Engineering community.

YEAR IN *review* 2009

ENGINEERS AUSTRALIA WA DIVISION

With thanks to our sponsors

Engineers Australia WA Division would like to acknowledge the vital contribution of its sponsors in enabling us to provide a range of services to our members and to promote the engineering profession to the wider community.

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