

## IPENZ ENGINEERS NEW ZEALAND 2002 remuneration survey

Includes the chance to win a weekend away at one of New Zealand's premier getaway spots – two trips to be won.

This is the ninth consecutive year IPENZ has conducted a remuneration survey using a questionnaire based on job points. The consistency of the survey method is now producing some interesting and useful indications of trends for a various jobs, regions, disciplines, etc. The results are available in the member-only area of the IPENZ website.

It is important that IPENZ continue to conduct the survey on a regular basis, and that the resulting figures are statistically valid, allowing everybody to use the information with confidence, and for this we need your help. The validity of the survey depends on members responding accurately, regardless of their position and level of responsibility within their organisation. Therefore, we urge you to complete and return this questionnaire irrespective of whether you feel that

your remuneration package falls within normal remuneration ranges.

To be entered into the draw for one of the weekends away, simply complete the questionnaire included with this issue of *engineering dimension*; then write the answer to the question "What does the abbreviation CPEng stand for?" on the back of your business card, attach it to your completed questionnaire and send it to National Office before 3 October 2002. Alternatively, you may complete the survey online at [www.ipenz.org.nz/ipenz/members](http://www.ipenz.org.nz/ipenz/members)

Note: Business cards will be separated from questionnaires upon arrival to ensure confidentiality. So that an individual's remuneration package cannot be traced to them, segmented figures will be published only if five or more people are in the relevant category.

Any queries regarding the remuneration survey should be directed to Callum Dyet on 04 474 8980 or [cdyet@ipenz.org.nz](mailto:cdyet@ipenz.org.nz)

## Opus wins Trade New Zealand award

OPUS International Consultants won the Services Exporter of the Year award at the Trade New Zealand Export Awards in May. OPUS was one of seven category winners of the awards, which were sponsored by DHL Worldwide Express.

The judges described OPUS as an "outstanding contender" in a field that represented the "growing maturity" of New Zealand exporters. They noted in particular the excellent business processes that OPUS applies to its services.

OPUS, which evolved out of a former state-owned enterprise, now employs 1200 staff world-wide, and is one of New Zealand's largest multi-disciplinary consultancies. Engineering consultancy accounts for roughly 90 per cent of OPUS's export business, with a particular emphasis on road asset management. Exports now represent a quarter of annual turnover, which OPUS aims to increase to 50 per cent over the next five years.

## President's Message

### Educating engineers



One of the central goals for IPENZ must be constant renewal of the profession, so that sufficient qualified and experienced engineering professionals are available to meet the needs of future generations of New Zealanders.

At present, we are nowhere near to achieving that goal.

The rate of social and industrial change has increased significantly in recent years, and is accelerating. The future economic and social development of New Zealand will depend on the availability of increasing numbers of graduates equipped to provide professional engineering services, or to bring a deep technical understanding to professional roles. We have for some time relied on immigration to make good a substantial deficit in the supply of engineering graduates and researchers. The economic future of the country should not be at the mercy of uncertain migrant flows.

There are many reasons that fewer young New Zealanders are pursuing engineering careers. Some commentators trace the problem to a widespread loss of confidence in technology and our capacity to use it responsibly. A more pervasive influence may have been the success of the engineering professions in improving the quality of life for the great majority of people in the developed world – increasing human life spans and connecting the world physically and electronically in a way no previous generation would have believed possible.

Young people take for granted their comfort and connectedness. The reliable, inexpensive technologies they use every day deny them the once-common experience of repairing and adapting simpler technologies and thus coming to understand their workings. Our young people are also exposed to a message that the real rewards in life reside in material possessions, and are more accessible to those in other occupations.

Serious efforts are being made to address these perceptions, which represent a major barrier to the emergence of a knowledge society. IPENZ, for example, has contributed to designing the secondary technology curriculum. In its tertiary education policy statements, the government has stressed the need to equip New Zealanders with the skills to participate in a knowledge society. How this will translate to resource allocation remains to be seen.

Continued overleaf >>>

<<< **President's Message continued**

Much more needs to be done. IPENZ simply does not have the resources to put trained and enthusiastic people into every school in New Zealand to help students to see engineering as a valuable activity, and a rewarding career. We need to focus our efforts on the institutions that educate and train new teachers, and the engineering schools themselves.

Some form of extended support to primary and secondary teachers is likely to prove more cost-effective than the brief contacts with school students that have been the focus of much of our effort to date. I would welcome feedback on these remarks.

We must provide greater encouragement and opportunity for people with diverse backgrounds to succeed in engineering. Entry criteria form part of the problem. There is a tendency to see secondary school studies in mathematics and the physical sciences as the only route to learning to acquire and weigh evidence, create predictive models, and reach informed judgments. Nobody disputes the importance of mathematics for engineering practice, but shortfalls can be addressed through bridging programmes and otherwise.

A more difficult aspect of the problem is the social framework of engineering education, and the tacit assumptions behind programme content and delivery modes. In my experience, an increasing emphasis on team-work and problem-based learning can make technical programmes more accessible and rewarding for diverse participants with no sacrifice of rigour.

Staff profiles should balance strengths in teaching and learning, research, professional practice and community service. Selection or promotion should reward excellence in all these areas, not just those that are traditional or lend themselves to measurement. The engineering schools and the profession should promote secondments, joint appointments, and mobility between schools and industry.

Programmes must equip graduates with a sound technical and professional background, and the capacity to communicate effectively, and understand the social and economic framework in which they practise. Engineering schools and professional bodies may well have put too much emphasis on management studies in undergraduate courses. Studying history, politics or communication might provide a more valuable counterpoint to technical courses.

The short half-life of technical knowledge in many disciplines emphasises the need for educational services that meet the needs for

lifelong education and professional mobility. Engineering schools, and IPENZ, will have to give more attention to recognising prior learning, including on-the-job training and experience. Engineering programmes appear increasingly to be based on co-operative models, and benefits can flow from closer relationships between industry and educational institutions.

No single engineering school should attempt to offer a complete range of advanced studies or carry out research in every specialised field of engineering. Rather than seeking economies of scale or consolidating the present system into a smaller number of larger schools, a networked, differentiated system should be developed. Government, industry and the profession should facilitate national and international learning and research networks, extending beyond the public tertiary education sector.

Finally, while we would all hope that new entrants to the profession will be driven by the excitement of using technical skills to address the challenges that face our country and communities, we need to make sure that misconceptions about the reward structure for new professionals do not create disincentives for new entrants. I would therefore like all members, whatever their role and status in their organisations, to spend a few minutes filling out the enclosed remuneration survey.

I know that some of you, particularly those holding very senior positions, feel that your remuneration might distort the figures for those who are involved in technical engineering roles. This need not be a concern. The job points system plots remuneration as a function of the authority, responsibility, and influence associated with each position.

We know that engineering can be financially rewarding as well as providing job satisfaction. The average income stream for people who hold engineering qualifications is comparable to that of other professionals, while their job satisfaction is often higher; potential students need to know these facts.

I, for one, will fill out the survey, although my work as the CEO of UNITEC is somewhat removed from technical engineering practice. There is no reason to hide from potential students the fact, celebrated in most countries, that an engineering degree is one of the best and most marketable general tertiary education qualifications available.

**John Webster**  
President

# Three registers, th

In the June 2002 issue of *engineering dimension* we outlined the proposal that IPENZ should introduce three competence-based registers aligned with the Professional (MIPENZ), Technical (TIPENZ) and Associate (AIPENZ) membership classes. Members have indicated their broad support for continued development of the proposed registers, but many have asked for clarification of the essential differences represented by the three. In this article, Basil Wakelin, Chair of the Professional Standards Board, explains work in progress towards developing three competence profiles.

First, members should be aware that the Professional Standards Board, which has the delegated authority to develop and approve competence standards, has yet to start considering the standards for the Technologist and Associate registers. However, National Office staff have done significant preparatory work on a first cut of competence profiles, which should answer members' immediate questions.


Members of IPENZ are united by professionalism; they all obey the same code of ethics and are expected to represent the engineering professions honourably and well. Accordingly the current thinking is that all three groups of registrants would be required to meet the same standards of professional behaviour, as illustrated in Table 1.

The differences between the three registers then reside in the technical aspects of their competence. All engineers solve problems and develop and design solutions but the complexity, depth and breadth of the problems and the techniques used to solve them will vary between the groups as indicated in Table 2. A key difference is thus the nature of the problem. For CPEng, the descriptor used was "complex" engineering problems. It is clear we need descriptors for engineering problems solved by technologists and associates, which will often be problems related to system components, or subsets of a complex engineering problem. For now the working descriptors adopted are "broadly-defined" (technologists) and "well-defined" (associates). A well-defined problem might be a component of a complex problem, or it might be a problem that can be solved routinely by standard codes. A broadly-defined problem might be a substantive part of a complex problem, or might belong to a family of problems that are frequently encountered.

The second major area of difference is the nature of the knowledge applied. Related to knowledge is the competence to assess and manage risk – generally speaking more knowledge is required to assess and manage higher levels of risk. Table 3 seeks to illustrate the differences but further work is needed to refine the profiles.

# Three competency profiles

Lastly, there may be differing levels of accountability required – acceptance of responsibility is a key requirement for a competent engineer and there will be some difference in capacity in this area as well, related to the kinds of work each type of registrant will perform.

At time of writing the Professional Standards Board has approved what is effectively the left-most column of the various tables as the CPEng standard for consultation. Development of the competence profiles for the other registers is only beginning, because they are likely to be launched about a year behind CPEng. Comments from members that will help express clearly the nature of the appropriate competence for each register would be appreciated. They can be sent to the Registrar ([wastney@ipenz.org.nz](mailto:wastney@ipenz.org.nz)). 

**Table 1: Standards of behaviour for all registrants**

|   |
|---|
| <i>To meet the standard for registration the applicant must produce sufficient and valid evidence that within his/her area of engineering practice he/she is competent and exercises sound engineering judgement through being able to:</i> |
| <ul style="list-style-type: none"> <li>• conduct his or her engineering activities to an ethical standard at least equivalent to the code of ethical conduct (specified for CPEng) and</li> </ul>   |
| <ul style="list-style-type: none"> <li>• appreciate the reasonably foreseeable social, cultural and environmental effects of his or her engineering activities and respond responsibly and</li> </ul>                                       |
| <ul style="list-style-type: none"> <li>• communicate effectively and respectfully to other engineers and those affected by his or her engineering activities and</li> </ul>   |
| <ul style="list-style-type: none"> <li>• maintain the currency of his or her professional engineering knowledge and skills.</li> </ul>  |

**Table 2: Possible differentiation between three groups of registrant in respect of the types of engineering problem analysed and solved**

| Professional Engineer   | Engineering technologist   | Engineering associate  |
|---|--|--|
| Define, research and analyse complex engineering problems   | Identify, further define and analyse broadly-defined engineering problems  | Identify and analyse well-defined engineering problems   |
| Design or develop solutions to complex engineering problems that are in accordance with good engineering practice   | Design or develop solutions to broadly-defined engineering problems by applying widely-accepted procedures or methodologies  | Design or develop solutions to well-defined engineering problems by using relevant standards and defined codes of practice   |
| <p><b>Complex engineering problems</b> means engineering problems having some or all of the following characteristics:</p> <ul style="list-style-type: none"> <li>• Involve a variety of factors which may impose conflicting constraints</li> <li>• Have no obvious solution and require originality in analysis</li> <li>• Are unfamiliar situations</li> <li>• Are outside those encompassed by standards, codes of practice for professional engineering</li> <li>• Involve diverse groups of stakeholders with widely varying needs</li> <li>• Have significant consequences</li> <li>• Cannot be resolved without in-depth engineering knowledge</li> </ul> | <p><b>Broadly-defined engineering problems</b> means engineering problems having some or all of the following characteristics:</p> <ul style="list-style-type: none"> <li>• Are parts of, or systems within, complex engineering problems</li> <li>• Involve a variety of factors which may impose conflicting constraints</li> <li>• Can be solved by application of well-proven analysis techniques</li> <li>• Belong to families of familiar problems which are solved in well-accepted ways</li> <li>• May be partially outside those encompassed by standards or codes of practice</li> <li>• Involve several groups of stakeholders with differing and occasionally conflicting needs</li> <li>• Consequences are important locally, but may extend more widely</li> <li>• Can be resolved without in-depth engineering knowledge</li> </ul> | <p><b>Well-defined engineering problems</b> means engineering problems having some or all of the following characteristics:</p> <ul style="list-style-type: none"> <li>• Are discrete components of engineering systems</li> <li>• Involve several issues, but with few of these exerting conflicting constraints</li> <li>• Can be solved in standardised ways without requiring originality of analysis</li> <li>• Are frequently encountered and thus familiar to most engineers in the practice area</li> <li>• Are encompassed by standards and/or documented codes of practice</li> <li>• Involve a limited range of stakeholders with differing needs</li> <li>• Consequences are locally important and not far-reaching</li> <li>• Can be resolved using empirical approaches</li> </ul> |

**Table 3: Illustration of differences between the three profiles for knowledge and handling of risk**

| Professional Engineer   | Engineering technologist  | Engineering associate  |
|---|---|--|
| Comprehend and apply knowledge of the accepted principles underpinning international good practice and any good practice in professional engineering specific to the jurisdiction of the candidate's practice | Comprehend and apply knowledge embodied in widely applied engineering procedures and methodologies relevant to the jurisdiction of the candidate's practice | Comprehend and apply detailed knowledge of specific elements embodied in defined codes of practice or standard in the jurisdiction of the candidate's practice |
| Identify, assess and manage risk  | Identify risks and implement defined and widely-accepted risk management strategies   | Recognise limits of applicability, detect unlikely results and take corrective actions   |

# The way we were

In 1917 the first President of the NZ Society of Civil Engineers, Mr R W Holmes, included the following remarks in his address to members:

"...I wish to refer to a few subjects of particular interest to members and engineers generally – the first is engineers' qualifications. It is unfortunate that the war has delayed the passing of legislation dealing with the employment of fully qualified engineers **only** by local authorities to supervise the expenditure of their funds on public works. Several incidents have come under my notice recently which emphasise more than ever the necessity for such legislation. Each of these incidents has already entailed the loss of many thousands of pounds, further losses will be incurred, and the cost of remedial works will have to be met. In one case in particular, a moderate fee paid to a specialist engineer would have saved several thousands of pounds.

There appears to be considerable misapprehension on the part of the public regarding the provisions of the legislation which has been proposed by our Society. For instance, many believe that an engineer who is not a member of our Society will not be able to be employed by a local authority, and therefore everyone so employed will be deprived of his livelihood. This idea is quite contrary to fact, as members will learn by a perusal of the draft bill which has been submitted to the Government. The only interest the Society will have in the matter is that it is proposed that the Society shall nominate two of the five members of the Board to be set up to determine the fitness of applicants to receive certificates of competency. With regard to present employees, it will be seen that Section 5 provides for the issue of "certificates of experience or service" within a limited period. There is absolutely no intention to endeavour to obtain legislation which shall cause suffering to any man, unless it be through his own neglect.

I wish to impress upon every member the necessity of becoming familiar with the provisions of the draft bill, in order to be prepared to defend the action of the Society in the event of hostile criticism."

As we know the Engineers' Registration Act 1924 did not come into operation until 1 April 1925 and contained a number of changes to the provisions outlined by Mr Holmes.

First, the Board when established consisted of six members rather than five, three of whom were appointed on the recommendation of the NZ Society of Civil Engineers to represent civil engineers, electrical engineers, and mechanical engineers. (The words "New Zealand Institution of Engineers (Incorporated)" were substituted for the words "New Zealand Society of Civil Engineers" by the Engineers' Registration Amendment Act 1977).

Secondly, Section 9 of the Act dealt with the issue of certificates of registration upon payment of the prescribed fee. The provision for **Annual** Practising Certificates was not introduced until the Engineers' Registration Amendment Act became law in 1944.

Finally, Section 8 (2) of the 1944 Act dealt with local authorities, stating that "no local authority shall employ as its engineer or, where it employs more than one engineer, as its chief or principal engineer, or engage as its consulting engineer, any person who is not the holder of an annual practising certificate issued under Section 3 of this Act". Certain exemptions were included.

Mr Holmes sadly did not live to see the passing of this legislation – **but** we've come a long way, haven't we? ☺

# Complexity and costs – the new IPENZ membership record system

Behind the scenes National Office has been replacing the membership record system with a new system designed to cope with future needs. We expect to spend more than \$500,000 on this project – a figure that may seem unbelievable, so Chief Executive Dr Andrew Cleland explains why.

The record system contains records for only about 20,000 people, but it is hugely complex – as complex, says a review we commissioned, as that of an organisation such as the Automobile Association. The complexity arises from the many activities we administer. People on the record system can be IPENZ members or not, join one or more Technical Groups, and be on one or more registers. There are also publication subscribers and complimentary mailing lists. Joining and resigning processes vary, and we need to track the progress of several hundred people with applications pending at any time, not just for IPENZ membership, but also for registers and Technical Groups. The system needs to accommodate recording and co-ordination of all these kinds of information.

Under the present system many people receive three separate invoices – one for IPENZ, one for Technical Groups, and one for registration. Many different payment methods may be used. The cost of sending invoices and reminders and processing three separate payments is substantial.

We specified the new system using the object-oriented paradigm. This involves creating modules based on a model for an organisational entity or function; then at any time in the future new "instances" of the module can be introduced. Adding a new register, for example, becomes a matter of adding another *instance* of the register module. An object at any level can "own" as many instances as necessary of any of the modules. The main modules contain personal records (identity records), IPENZ records, Technical Group records, Register records and publication subscription records. There are also many utility modules, such as those for recording committees, or the Roll of Honour for an Award. There are also modules for logging communications with members, so we know what you told us last time we talked.

The new system will lower administrative costs by replacing the three invoices with a single invoice, to be used for the first time in October 2002. Members will be able to see the costs that make up their various fees. The new invoices will look nothing like the old ones, and more like a gas or electricity invoice.

We spent about 500 staff hours and 100 consultant's hours preparing the several hundred pages of specification early in 2002. In May we let a contract to Mercury Projects Ltd, a Wellington software developer who have previously developed similar record systems for other professional associations. The new software will be delivered progressively from August 2002, and we do not expect to see the final modules until mid-2003. ☺

## Graduate opportunities

Transfield Services, a provider of operations and maintenance services, has announced a new graduate programme. About eight students in their third and fourth years of engineering degree studies will be selected for a summer works programme. The company will support these students in their final year with a scholarship, and once they are qualified two engineers will be offered permanent employment with the company.

Transfield Services employs around 1000 people in New Zealand. Its contract portfolio includes a broad range of industries, including road, rail, oil and gas, IT systems, water utilities, telecommunications, facilities management, defence, power and minerals. ☺

**Angela Christie – Schools & Community Programmes Manager**

Angela brings to IPENZ a passionate interest in the technology curriculum, developed in the course of a varied career in the education sector. Angela has a primary teaching background, and spent five years teaching in the UK. In the mid-90s she worked at the Wellington College of Education, providing in-service professional development in technology

education for teachers. Then she worked as a NZ Technology Teacher Fellow with Technology Education New Zealand (TENZ) to develop case studies of technology education supported by IPENZ Neighbourhood Engineers.

Angela has spent the last three and a half years at the Royal Society of New Zealand (RSNZ) where she was responsible for high-profile technology projects such as the TENZ conference, rewriting and re-branding the CREST Award Scheme, running the Ministry of Education-funded CREST Enterprise Education programme, establishing and administering the Society's Technology Advisory Group, and supporting the NZ Technology Teacher Fellows.

Now Angela moves on to new challenges at IPENZ. One is to develop strategies for good communication between the engineering and education sectors, bridging the gap between their cultures to promote co-operation. Then there is a review of the Neighbourhood Engineers Programme, and setting up the Tech-link project. Tech-link involves developing resource packages, and trialling them in representative schools throughout New Zealand. She will also continue to support links with RSNZ and members of the National Network of Technological Societies, and the development of the Informatory Notes series.

Angela enjoys golf, scuba diving (only in Fiji, she confesses – it's far too cold here), horse-riding, movies, reading and theatre. She spends a lot of time renovating her home and has become a paint-scraping expert. She has travelled all over the world, and says her next trip will be to Machu Picchu.

**Alan Williams – Professional Practice Officer**

Moving from the UK when he was ten years old, Alan grew up in Auckland where he developed a passion for cars, and qualified as a panelbeater in 1984. His family then moved to Hawke's Bay.


Alan built a 5.7litre Chevrolet-powered mk2 Escort, which he drag-raced and drove (unsuccessfully) around the Taupo racing circuit. On one occasion a rear

wheel snapped and he lost control on his home street. Imagine the embarrassment of having the car towed from outside his house into the driveway!

Alan also raced a speedway super-saloon a few seasons ago and picked up the nickname BigAl from his speedway mentor, Jumbo. The passion remains – now he restores classic cars, mostly Jaguar, in his spare time.

Alan has sold his home in Te Aute (population was ten, now seven) and has moved to Paraparaumu Beach. The best thing about his new home apart from the beach is the BIG WORKSHOP, though he has to be careful not to forget his partner and her daughter while he plays in his shed.

After running his own car-restoration business for a spell, Alan spent the last three years as District Manager for NZTS, winning the District Manager of the Year award for 2000/2001. The move to Wellington will provide him with new opportunities to develop his career. He has a strong interest in law and the IT environment, and completed several papers in these areas at Victoria University as a full-time student prior to joining IPENZ.

Alan says he is developing an understanding of the professional practice area and has already identified some areas for streamlining. Though IPENZ is a big departure in many ways from his previous experience, he has settled into the environment and is enjoying his new role and the challenges it promises. 

## Chartered Professional Engineers of New Zealand Act 2002

### Notice of consultation with affected parties on CPEng standards by IPENZ acting as Registration Authority

**Closing date for submissions:**  
**30 September 2002.**

The Chartered Professional Engineers of New Zealand Act 2002 requires the Registration Authority to develop rules (Section 40(2) of the Act) governing:

- (a) the title of Chartered Professional Engineer
- (b) registration of Chartered Professional Engineers
- (c) disciplining of Chartered Professional Engineers
- (d) rule-making procedures.

The Registration Authority may also make any other rules (Section 40(3) of the Act) that


- (a) are necessary or desirable to govern the practice and procedure of the Registration Authority's functions under the Act

(b) the Registration Authority considers to be desirable in the interests of natural justice.

IPENZ (as Registration Authority) now seeks to consult those who may be affected by these rules. This is a separate process from the previously notified consultation on CPEng Standards.

The rules will set down procedures, and IPENZ wishes to ensure that they comply with the CPEng Act, are accurately described and fair. During consultation IPENZ will also receive advice on converting the rules into language suitable for government regulations. It is recognised that there are advantages to continuing development of the rules during the consultation process, so that interested persons can see the rules in their final form, in so far as this is practicable.

The first proposal for the rules will be published on the IPENZ website ([www.ipenz.org.nz](http://www.ipenz.org.nz)) around 12 August 2002. Updated versions will be published on 26 August 2002 and 9 September 2002. The difference between the versions and the rationale behind the changes will be explained in documentation accompanying each version. Printed copies of the latest version of the proposed rules may be requested by phoning 04 473 9444 during office hours.

Submissions on the CPEng Rules must follow the format specified in the consultation documents, and should be sent in writing to IPENZ ENGINEERS NEW ZEALAND, PO Box 12 241, Wellington, or emailed as a word document to [cpeng@ipenz.org.nz](mailto:cpeng@ipenz.org.nz). Submissions should always address the most recent version, but you may make successive submissions on more than one of the versions. 

# Continuing Professional Development policy

Since 1996 IPENZ members (excluding student and affiliate members and companions) have been bound by the IPENZ CPD policy, which required members to participate in at least 50 hours of CPD per year (or 150 hours over three years).

The CPD guidelines stated that CPD activities should balance interactive and passive activities; and valid CPD included activities directly related to members' work roles as well as more generic activities. Exactly what activities contributed to one's professional development was left to the judgement of members although recommended weightings were given to various types of CPD activities. The policy stated that up to 5 per cent of members would be audited each year for CPD compliance.

## Policy changes

A revised CPD policy will be put in place in 2003. It is proposed that the revised policy will not include an auditing requirement, but will maintain and further develop the current guidelines for good CPD practice. If, for example, a member no longer practises as an engineer then their CPD activities would be expected to relate to their current employment role, whatever that might be. A fully retired member would obviously not be duty bound to participate in any CPD activities. In other words it is proposed that the revised policy will relax the CPD compliance expectations for IPENZ members, but maintain their CPD obligation.

## Initial Competency Assessments

IPENZ initial competency assessments for entry into the classes of AIPENZ, TIPENZ and MIPENZ currently require applicants to submit three years' CPD records as evidence of competence. The requirement to demonstrate a track record in CPD participation is unlikely to change with the proposed introduction of

aligned public registers. The emphasis, however, will shift from *quantity* (50 hours of CPD per year) to *quality* of output: the CPD records must provide evidence that the applicant has developed and maintained their professional competence.

## CPEng Current Competence requirements

Under the CPEng Act those on the register will need to demonstrate current competence at regular intervals. It is proposed that they should undergo a current competence assessment every five years. The test is whether the applicant is still competent. This goes beyond just providing evidence of participation in CPD; instead CPD records will be part of an engineer's portfolio of evidence that they are currently competent to practice as a professional engineer.

If, for example, an engineer has changed their area of practice since their initial competence assessment, or changed the nature of their engineering activities from, say, a technical role to a management role, then the CPEng assessors will be looking for evidence of CPD activities (formal learning, independent research, on-the-job learning beyond their normal employment activities, mentoring, attendance at courses, etc) that have equipped the applicant to make this career change.

Even if a CPEng applicant has not changed their area of engineering practice, or the nature of their engineering activities, their CPD records should provide evidence that they have kept up-to-date with current good engineering practice. It is expected that the CPEng current competency requirements will be duplicated for the proposed registers for engineering technologists and engineering technicians.

## CPD guidelines

CPD guidelines will be developed for those applying for entry into a competency-based membership class and aligned public register. It is proposed that they should be very much in line with current IPENZ CPD policy. CPD records, for example, should still show a sensible balance between passive and interactive activities, and the greater part should be directly related to engineering practice, though some CPD activities can be more generic in nature. Although time spent on CPD activities is not a good indicator of developing competence the revised IPENZ CPD policy, and associated CPD guidelines for competence assessments, may still recommend a minimum participation time for CPD activities per year.

The crucial point, however, is that the sheer quantity of CPD participation will not be the issue; applicants will need to demonstrate how their CPD activities are linked to developing and maintaining the currency of their knowledge and competence in their area of engineering practice. It has been suggested that, for MIPENZ and CPEng engineers, the IPENZ on-line system for recording CPD could be refined so that as well as briefly describing each CPD activity members could also indicate how participation in each activity enhanced their competence as a practising professional engineer. This could be done simply by ticking the appropriate element/s of the CPEng standard but space could be made available for comment.

Members will have the opportunity to comment on the draft CPD policy when it is revised later in the year.

For comments or questions related to CPD please contact Virginia Burton, Education and Career Development Manager [vburton@ipenz.org.nz](mailto:vburton@ipenz.org.nz)

## High flier spreads his wings wide



Regan Potangaroa's cv leaves you wondering how anyone could find time to do so much. As well as 20 years' professional experience spread across eight countries and a substantial publication record, he has collected a formidable array of academic qualifications.

Not content with his Master's degrees in Engineering (Canterbury) and Architecture (Victoria), he has recently completed a PhD in

architecture AND an MBA at James Cook University in Australia.

Regan emphasises he has not become an architect – he remains “very much a structural engineer”, and currently works as Senior Engineer for ARUP USA. But he

says structural engineers need to understand more about the aspects of building design that are not strictly engineering, and he cites the example of sustainability. Regan will present a paper on “The Passive Engineer” to the Structural Engineers' World Congress in Yokohama in October, and has been involved in the development of design guidelines for naturally-ventilated school buildings in Singapore. He has also served on the Wellington Historic Places Trust.

Structural engineering work has taken Regan to Philadelphia (where he is currently co-ordinating design of \$US350M football stadium), Singapore, Brunei, Australia, Malaysia and Indonesia, besides many places in New Zealand. As a member of RedR he has also undertaken missions in West Timor and Pakistan, working on refugee facilities for the United Nations High Commission for Refugees. “Home” has been anywhere from his own yacht in Brunei to a campervan while he was studying in Australia.

Of Ngati Kahungunu descent, Regan has served on the board of a Maori incorporation, and was involved with the National Association of Scientists and Technologists, which grew from the former Maori Graduates Association. Professional affiliations include IPENZ, RedR and the Council on Tall Buildings and Urban Habitat. And somewhere in there he finds time for sport – sailing, skiing, and playing, refereeing and coaching volleyball. They say if you want something done give it to a busy person. ☺

# Recognising our leaders and heroes

## Nominations for Distinguished Fellow, Honorary Fellow, Fellow

Nominations are called for engineers at the top of the profession to be promoted to the class of Fellow. Fellows are members of IPENZ who have made a substantial contribution to the engineering profession, its practices or IPENZ itself.

Each candidate for Fellowship of IPENZ is expected to have excelled in one of the following areas

- advancement of engineering knowledge
- advancement of engineering practice
- application of engineering or technology in the community
- advancement of technological education
- innovation in creation of engineering works
- innovation in creation of technological products
- leadership in the profession of engineering
- development of the Institution

and have

- contributed to some aspect of the Institution's work, or that of an organisation with similar objectives, for at least one to two years
- a stable work history including roles with significant responsibility, and projects with a significant impact on stakeholders
- been a Member of IPENZ for at least three years

Those who are already Fellows and have achieved a degree of eminence may be nominated for elevation to Distinguished Fellow status.

Honorary Fellowship is available to individuals who are not engineers but are professionally engaged with engineers and have made an outstanding contribution relevant to engineering.

Fellowship nominations should follow the guidelines set out in the Fellow nomination documents, which are available from [www.ipenz.org.nz/ipenz/who\\_we\\_are/honours/fellows.cfm](http://www.ipenz.org.nz/ipenz/who_we_are/honours/fellows.cfm) or by contacting Alan Williams, [awilliams@ipenz.org.nz](mailto:awilliams@ipenz.org.nz)

Nominations should be submitted by 30 September

## Obituaries

### Donald Chadwick Airey MIPENZ 1930–2002



Don Airey collapsed and died on Friday 17 May while teeing off at the second hole on the Whangamata 9 hole Golf Course.

Don was the founding Director of Airey

Consultants Ltd, Consulting Civil & Structural Engineers. Born in 1930, he was educated at the Seddon Memorial Technical College where he also played in the first cricket eleven and the rugby first fifteen. He attended Auckland University School of Engineering at Ardmore, graduating with a Bachelor of Engineering Degree in 1953.

Don worked for the Palmerston North City Council before transferring to the Rotorua City Council as Deputy City Engineer. He was appointed Borough Engineer to Pukekohe Borough Council in 1962.

He resigned from that position in 1965 to join Bill Birch, who was practising as a surveyor in Pukekohe, as the engineering partner in a practice that became Birch and Airey. When Bill Birch retired from survey practice to enter Parliament, Don established his own consulting engineering practice.

He acted as the Borough Engineer to the Tuakau Borough Council for many years and undertook

many projects for local authorities in the area, and clients in the Franklin and South Auckland regions. Over 35 years, Don's firm has developed into an organisation with four directors, over 30 staff and offices at Orewa, Takapuna, Howick and Pukekohe, with resident engineers on projects at Whitianga and Queenstown.

Don's two great sporting interests were cricket and golf. As a member of the Pukekohe Golf Club, his engineering expertise was called upon to create water hazards and his later membership of the Whangamata Golf Club resulted in drainage improvements.

Don's quiet and unassuming manner and his belief in providing the best possible service to his clients earned him wide respect from his fellow directors and staff, his clients and other engineers.

Don is survived by his wife Margaret, daughter Susan, son Bruce and three grandchildren.

### Neil Hansen FIPENZ (Retd) 1918–2002

Neil Hansen's role in the development of Western Bay of Plenty has been described as "visionary"; but his vision was matched with a practical capacity for getting things done during a lifetime's professional and personal involvement in the Tauranga region.

Educated at Tauranga District High School, he took up a five-year engineering cadetship with the

Tauranga County Council. During World War 2 he served in North Africa and Italy, rising to the rank of captain. He returned to Tauranga, completed his technical education, and was appointed County Engineer. He contributed greatly to the development of the large, hitherto neglected county, securing huge improvements in roading and bridges.

An environmentalist ahead of his time, Neil fought to promote the wise and sustainable development and management of the land and especially the harbour, resisting haphazard subdivision of productive land and inadequate sewage disposal proposals. He also helped develop the infrastructure for the Port of Tauranga. In 1975 he was appointed the county's Planning and Development Officer, and retired from this position in 1981.

Neil was on the road research unit of the National Roads Board for 13 years, and pioneered the introduction of cement stabilisation pavements. He was a consultant for the Colombo Plan aid programme, and served as an adviser in Taiwan.

He is also remembered as an author of local histories, and as a member of the Tauranga Game Fishing Club, the New Zealand Institute of County Engineers, and the BOP Officers' Club.

He is survived by his wife Nancy, two children (with his deceased first wife, Pa), and four step-children. ☺

## Membership Changes

The following is the full list of additions to and changes in the classes of membership for the period 1 June– 31 July 2002.

### Elected to Graduate

S J Adams, A J Akehurst, D E Apimerika, M Apuda, B S Batanes, C S Bearsley, A T Blackie, G M Blackman, P R Blue, MPW Cameron, R Cardeno, G B Caygill, M T Chang, S B Cleaver, C M Davies, H T Davies, N C Denham, B J M Donnell, S Erriah, S J Farnworth, L T Fay, R L Forbes, S A Funaki, R K B Gollan, A G Gray, J Gu, S D Hardcastle, M R Hawkes, K Hodges, CUS Hu, F Huang, J S Iopu, P S Jansen, A D Jackson, S L Jackson, G Jarvie, T M Johnson, A M King, S M Kingi, S Kyriakou, J D McAllister, N P McKenzie, M Z Man, C N Mills, JMM Ng, B A Obidoza, M R O'Neill, N Paine, C F Parker, K H Passow, Y J Phoon, K M Purton, A J Quinn, A K Raman, H Rahmanian, E J Robinson, A D Rudge, R G Rupasinghe, S Sam, L Saxena, R W Shaw, S A Siddiqui, M Silari, R M Simpson, S Sivapakkiam, A J Snyman, G M Sole, J W Stewart, W J Stringer, M L Taylor, S Thayalan, G J Thomas, J B Thornton, R M Tripe, G M Twining, D M Wai, W E Wakelin, M A Wild, H D Wilde, D J Wilkinson, R A J Wilks, M J Wilton, N J Wilton, A L Yee,

### Promoted from Graduate to Member

S L Findlater, J J Hill, R L Pollard

### Elected to Member

E Canal, P J Ciszak, G E Dodd, W S Lawson, T R Neitzert, R M Pena

### Elected to Engineering Technologist

N L Christall

### Elected to Affiliate

R C Hopkins, B R Hudson, D Jugum, C A Moore

## Coming Events

### Hopkins Memorial Lecture

Meeting IPENZ Canterbury Branch, lecture by David Hopkins on "Consulting engineering – serious fun".

**When:** 8.00pm, 21 August 2002

**Where:** Limes Room, Christchurch Town Hall

**Contact:** jmpdbean@xtra.co.nz

### Road to Registration

IPENZ Wellington Branch, Young Engineers NZ lecture/meeting. Jeff Wastney of IPENZ talks on the "Road to Competency Assessments".

**When:** 5.30pm, 22 August 2002

**Contact:** jwastney@ipenz.org.nz

### Public and Private Sector Partnerships

Covers policy developments, risks, funding and opportunities, and provides case studies and contacts.

**When:** 26–28 August 2002

**Where:** Carlton Hotel, Auckland

**Cost:** \$1119.38–\$1906.88 (GST incl)

**Contact:** register@biiia.co.nz

**Website:** www.biiia.co.nz

### Finance for the Engineering Manager

The complexities of financial management in practical language

**When:** Wellington 2–3 September; Auckland

5–6 September

**Where:** Duxton Hotel, Wellington;

Heritage Hotel, Auckland.

**Cost:** \$1569.38 (GST incl)

**Contact:** kpeters@iir.co.nz

### Power System Protection

University of Auckland short course; detailed applications in real-life contexts, with practical work.

**When:** 28–29 August 2002

**Contact:** www.shortcourses.ac.nz/engineering

### Changes to Transfund's Project Evaluation Manual

Series of one-day workshops, including demonstration of new Transfund project evaluation software.

**When:** Palmerston North 9 September; Wellington

11 September; Rotorua 13 September; Auckland

North 16 September; Auckland South 16

September; Christchurch 18 September;

Dunedin 19 September.

**Contact:** lynette@nzihf.co.nz

### 16<sup>th</sup> Australasian Coasts & Engineering Conference

On "Coastal Development – a Quest for Excellence"

**When:** 9–11 September 2002


**Where:** Hyatt Hotel Auckland

**Contact:** coastsandports@tcc.co.nz

**Website:** www.coastsandports.co.nz

## Early warning – Special General Meeting

The Board is preparing for a Special General Meeting of the Institution to be held in Wellington at 4.30pm on Tuesday, 3 December, immediately preceding the CPEng Register launch function, which we expect will be hosted by the Hon Nick Smith. The agenda item for the Special General Meeting will be the repealing and replacement of the IPENZ Rules. The various changes proposed were outlined in

the June issue of *engineering dimension*. The repeal and replace process is proposed in order to reorganise the Rules to be much more user-friendly. Members who have comments on the proposed changes may still send them to the Chief Executive (acleland@ipenz.org.nz). We thank members who have made comments, all of which have been constructive, and none of which have opposed the changes. 



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