



General Practitioners March 2020 Newsletter

Welcome to our second newsletter to members.

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Message from the Chair

Hi all.

Your committee has been working away in the background and this newsletter seeks to let you know what is happening and what we see the year bringing for us. We met a couple of weeks back and have been trialling methods of setting up a communication channel/forum venue/repository for documents etc. Once we have it sorted we will go live and all EGP SIG members will be given access.

Work is ongoing to co-sponsor CPD events which may have special value to EGPs. We also have several initiatives of our own in the pipeline. These are principally intended to provide a resource covering practice for EGP engineers (eg design, QA, and Construction Monitoring). It is the intention to keep these coming and to store the information in a searchable database.

We are aware that it seems as though the SIG is focussing on the building sector at the moment. This is true as it seems most engineers joining us are from this sector. However we recognise (and have had feedback) that there is a need for similar development for other disciplines - Mechanical and Electrical come to mind, and others. As our systems and processes become established we will look at how we might be able to help. In the meantime please bear with us and if you have any specific ideas drop me a line and I will bring it up at a committee meeting and see how we can help.

Aaron has been working on a survey to collate information on what EGPs actually do. Of necessity this is quite complex as surveys have traditionally not drilled down to the level of showing the cross-discipline nature of what we do. It needs to be detailed enough to get the information while not becoming a burden to fill in. Look out for it and please take the 15 minutes it will need to get the information back to us. The data will, I believe, prove very useful to support a case for the General Practitioner to be recognised.

Further to that it is encouraging to see our membership growing – now well into our second hundred. It is vital to have as many engineers as possible who identify as GP's to be members as it is the numbers that will give us a voice.

On a similar note as I travel around the country talking to engineers a common theme is a disconnect with ENZ. I am very aware that it is not always easy to see what our organisation does for us. I can only suggest that the answer is to read as much of what is sent out as possible and wherever possible become involved at a local level (and wider if you are able). The staff at ENZ have our best interests at heart and work extremely hard to provide the support for those interests both within the profession and outside it in the community and in advocating our interests to local and national governments. As a service industry our interests, of course, align with those of the communities in which we live.

Again, the collective voice is vital and the only way we have such a voice is to belong to our professional bodies. If there is something specific you are not getting let ENZ know or even ourselves and we will pass the concern on.

Lastly – a plug. I have been a practice area assessor for a number of years and have recently started to work as a Lead Assessor for CPEng. Taking on the PAA role has been the best professional development I have ever done. In terms of time input for usable knowledge gained it exceeds any course I have done – and the time spent is recognised as PD. We need more GPs to do this work. Please consider it and contact Peter Lourie at ENZ if you want to know more.

Pete van Grinsven

Results of the One Question Survey

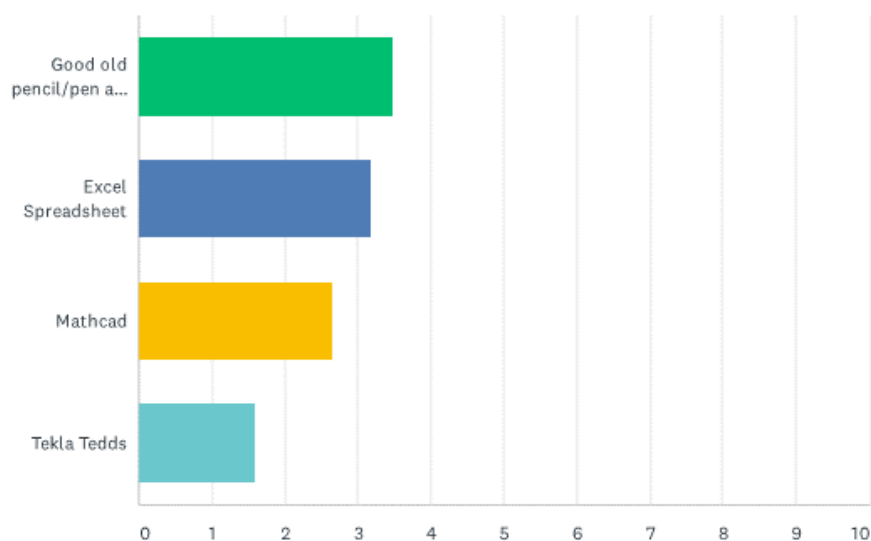
In the last issue we asked you:

What is your preferred method for doing *general calculations* in the office (**1 highest**, rate as many as you use regularly):

- Good old pencil/pen and paper
- Excel spreadsheets
- Mathcad
- Tekla Tedds
- Other _____

Q1 What is your preferred method for doing general calculations in the office (1 highest, rate as many as you use regularly):

Answered: 34 Skipped: 0



Thank you to those who took part. The results were a strong indication that pencil/pen and paper calculations still have a dominant role in the office for most EGP's. Other tools that were also commonly used were Microstran, ETABS, SpaceGass etc. One submitter was very honest, declaring they "Pay a tech savvy colleague to run their programme"!

As our membership grows, we look forward to asking this and similar questions again to see what changes over the years.

There is no One Question Survey in this issue as we hope you will help Aaron out with his survey on Defining a GP Engineer for CPEng Assessment – this is something that will assist all of us if we can present a united voice (see below).

Defining a GP Engineer for CPEng Assessment

Aaron Holland is currently preparing a survey which will help define what an Engineering General Practitioner is, initially to our own professional body and later to Councils and the general public. We can use the results from as many members as possible to demonstrate to assessors, for example, that 'complexity' in engineering is not confined to a particular field or specialisation but can result from engineers juggling a broad range of engineering activities.

This survey will be released to you all via email in the very near future and we look forward to seeing and sharing the results!

How to determine a charge out rate for a Sole Practitioner?

Gordon Hughes

This article is based on more than 40 years of practice and assumes that the sole Practitioner is working from a home office and that his wife/partner does administration including invoicing and collection of money and paying of accounts, arranging stationery items. It also assumes that drawings are done by the practitioner or others outside of the practice and there are no subcontract payments.

These costs are for illustration purposes only and are current based on the writer's practice:

EXPENSES

Costs standing charges ACC and administration	\$50,000
Vehicle Expenses	\$15,000
Printing, Bad Debts Phones etc	\$15,000
Insurances & Financial	\$25,000
Shareholder Salary (Based on Engineering 2018 salary Survey)	\$165,000
Subtotal	\$270,000
Risk Return Factor at 33%	\$90,000
Total Annual cost	\$360,000

Potential earning capacity:

Based on 4 weeks annual leave, statutory holidays, 5 days sick leave and 3 days study leave.

This gives potential 52x5 days (260 days) minus annual, sick and study leave (28 days) and statutory days: New year (2), Anniversary, Waitangi, Easter (2), Anzac, Queens birthday, Labour day, Christmas and Boxing day (11 days). This leaves a maximum of 221 days at 7.5 hours a total potential chargeable hours of about 1650 hours. My records indicate that chargeable hours do not exceed 85% of worked time and this gives maximum chargeable time of 1402 hours or a target hourly rate of around $360,000/1402=\$257/\text{hour}$

There are a number of variables and the most significant on the cost side are Administration costs, PI insurance, vehicles and shareholder salary.

The risk return rate is subject to opinion but is based on an offer to purchase my practice some years ago and is the rate the interested party required. Sole Practice is not without risk and a suitable rate should be selected otherwise the practitioner would be better off working for someone.

Earning capacity is obviously a function of the time spent.

A different view on remuneration for services is to consider the value we add for the client and that we should not use hourly rates. I found when I started to use this concept over 18 years ago

that I had fewer bad debts and more happy clients and repeat work and significant increases in remuneration. Refer to the link for information on Value pricing:

<https://www.consultingsuccess.com/value-based-pricing>

Retaining Wall Vehicle Surcharges

Bruce Tricker

Many engineers who use limit state design will calculate the static surcharge forces on the soil behind a retaining wall and then apply a load factor of say 1.5 when designing the wall (as with the soil forces themselves). The Building Code is slightly different, using a factor of 1.6 in its example in B1/VM4 for a static load case. For example, a 5kPa vehicle surcharge (e.g. Medium vehicle traffic areas as defined in *AS/NZS 1170.1 Structural Design Actions* Table 3.1) would be as follows:

$$1.5S = 8\text{kPa (using B1/VM4)}$$

A lower value of 2.5kPa is also stated in *AS/NZS1170.1* for cars and light vans. This is the value used in the standard designs in *NZS 4229:2013 Concrete masonry buildings not requiring specific engineering design* (Appendix A).

There is some ambiguity in *AS/NZS 1170.0*. "Earth pressures" (Fe) incur a load factor of 1.5, but "Imposed actions" (Q) incur a much lower factor, ψ_c (generally equal to 0.3 or 0.4). Treating a live surcharge on the ground as an imposed action is the approach used in the Module 6 of the *MBIE Earthquake geotechnical engineering* (and *NZS 4229:2013* above). The result of a 2.5kPa vehicle surcharge would therefore be as follows:

$$0.4Q = 1\text{kPa (using MBIE Module 6)}$$

To complicate matters, councils often require provision for a vehicle surcharge on boundaries of 12kPa, presumably in line with HN traffic loading in the *Bridge Manual*. The *Bridge Manual* treats live surcharges as earth loads, with an associated load factor of say 1.35, depending on the combination under consideration. The current *SESOC Soils* software uses a factor of 1.3. The factored 12kPa surcharge could be expressed as:

$$1.35EP = 16.2\text{kPa (Bridge Manual) or}$$

$$1.3S = 15.6\text{kPa (SESOC Soils software) or}$$

$$1.5S = 18\text{kPa (using a traditional approach)}$$

So, which is the correct factored vehicle surcharge for retaining wall design? Anywhere from 1kPa to 18kPa apparently! Quite a difference for what would appear to be a fairly straightforward matter of compliance. Further clarification has been sought, but in the meantime, it seems to be a matter of engineering judgement.

Note that the above regards gravity loading only, which usually governs for walls less than 3m high. The lower the wall, the more a vehicle surcharge plays a significant role in the overall design.

Continuing Professional Development

Julie Elliott

Martin Pratchett from Engineering New Zealand has organised a series of speakers with the first of the year held on the 26 February walking non chartered engineers through the pathway to become chartered, and sharing resources. There are 3 more lectures in this series. This series is presented in Wellington and streamed to other locations to encourage small network groups. There is also the option to register for online viewing.

The remainder of the series includes;

March – Postponed

April – Potential fire issues in MDH

May – Durability – Adam Thornton

The registration link will be shared to the membership a few weeks before. We are always open for suggestions of CPD webinars. Please feel free to share a topic of interest and perhaps a suggested presenter to general.practitioners@engineeringnz.org.