

CETANZ

Civil Engineering Testing Association of New Zealand



CETANewZ

The official newsletter of the Civil Engineering Testing association of NZ

Issue 003, May 2008

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From the Chair

As we end another earthworks season, we move into a busy winter. In my experience and discussions with colleagues so far, the predicted downturn in the economy has yet to have a significant impact on the civil engineering testing industry.

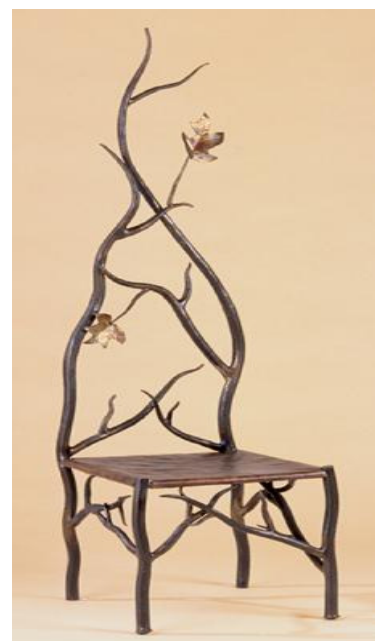
This issue of CETANewZ is full of great new developments in our industry. The CETANZ committee continue to work hard in their working groups for the betterment of our industry.

The September 2008 conference is shaping up with some excellent papers and presentations already submitted. Claire Laybourne and the Society Activities working group are creating an excellent event that I really hope you are able to attend.

The Technical Issues working group are ploughing their way through some key areas of development. Jayden Ellis and his team are shortly going to be kicking off the National Proficiency Programme, kindly sponsored on the first occasion by Stevensons. This will become an important part of our technical development with IANZ providing us with technical independence. This will be available to all CETANZ members.

I would like to encourage you to visit the conference website www.cetc2008.org.nz and view our progress. Your attendance at this conference will be considered as Continued Professional Development for your application as a Registered Engineering Technician or Technologist. Please consider how your participation will help your career, your company and your industry for the future.

Paul Burton



From the working groups...Society Activities

Registration and call for papers is now open for CETC 08! Get in quick

calls for papers now open



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From the working groups...Technical

How a New Zealand Standard is changed.

NZS 4407:1991, NZS 3111: 1986, NZS 4402: 1986 and NZS 3112:1986 are just some of the many standards we as Laboratory operators use every day. Some of these standards are getting on in age now, and sooner or later somebody somewhere will need to look at updating or changing some if not all. CETANZ will be representing you as Laboratory professionals in this process.

But how does it all work???

CETANZ contacted Mr. Cas Cinque, Senior Project Manager for Standards New Zealand to get the full story.

Cas told me

Standards New Zealand is a not-for-profit organisation which relies on two main areas for revenues, sales of Standards and funding from industry, government departments, Crown entity, associations, ministry etc. to manage the Standards development process.

The funding basically covers the cost of developing a Standard. The Standards are drafted by technical expert volunteer committees made up of individuals nominated by national organisations and associations which have an interest in the Standard being developed (regulators, academic institutions etc.) Whenever a committee is set up to amend or revise a Standard we always seek a balanced committee to ensure the final Standard is considered good practice, independent, and does not unfairly benefit any one group, or product, or service, etc. The process is consensus based.

Typically, it is industry or government agencies that approach us to amend or

revise a Standard, and Standards New Zealand will then, through discussion with key interested groups, create a proposal outlining the reasons and costs for the amendment or revision. Often the amendment or revision is jointly funded by a number of interested parties, for example industry, regulators and national associations.

The costs vary greatly, and are dependent on the changes being proposed, a simple quick amendment can cost \$20,000 and take 6 months, and a full-blown new Engineering Standard \$500,000 and take 5 years to do, the scope and costs are agreed up front with the funders and this forms part of the contract.

For a document to become a Standard there is a straight forward process that needs to be followed to meet the obligations under the Standards Act. The key being a balanced committee, a draft being available for public comment (period 8 weeks), committee members being balloted and consensus to publish (80% positive votes).

Recently, Amendment 2 of NZS 3112 cost the Cement and Concrete Association of New Zealand (CCANZ) \$ 7,000.00; NZS 3101 cost \$150,000 and took five years to complete.

So who's doing what? The fastest way to find out, if you're not already a member of Standards, is to visit their web site www.standards.co.nz and click on the "Public Comment" Tab. Here you can download the draft version for an 8 week period and submit your comments.

What part will CETANZ play? The CETANZ Technical Group will endeavour to represent our Civil Engineering Industry by making comment on Draft Standards, and by seeking a place, or representation, on some of the committees.

"Recently, Amendment 2 of NZS 3112 cost the Cement and Concrete Association of New Zealand (CCANZ) \$ 7,000.00; NZS 3101 cost \$150,000 and took five years to complete."

We will keep you informed about development of standards of interest and any activities that CETANZ are a part of, that may result in standard amendment ...i.e. The NZ Vibrating Hammer method review.

We will also be running a section called Standard Alert !which will help keep you in the picture.

Words by Jayden Ellis, CETANZ Technical Group

And Thanks to
Cas Cinque, Senior Project Manager, and
Michelle Wessing the General Manager of
Standards Development.



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Beam me up Scottie!

Benkelman Beam Testing

By Steven Anderson, Geotechnics

Most testing people are familiar with the Benkelman Beam test for measuring pavement deflection under an 8.2 tonne, single axle, dual tyre truck. This familiarity extends to customers who ring up for a "Beam Test" and the guys doing the testing who refer to it as "Old Benkie" - in some cases "Old Benkie" is really old and made of wood. Today the Benkelman Beam test is still widely used and has not changed significantly in all of these years

The Benkelman Beam test was originally developed in the United States at the Western Association of State Highway Organisations (WASHO) Road Test in 1952.

It was developed by Alvin Carlton "Benk" Benkelman Sr., he was of the old school of researchers who relied on empirical and personal observations. Benk was a Chemical Engineering graduate of the University of Michigan, he first worked for the Illinois and Michigan Highway Departments as a research engineer. Then from 1934-1954 he worked for the U.S. Bureau of Public Roads in charge of structural design of flexible pavement. Benk went on to work for the American Association of State Highway Officials (AASHO) which became AASHTO.



A.C. "Benk" Benkelman

He was a man of the pavements and liked to personally walk and make observations of the pavement while thinking about what was going on within the pavement – he was born in May 1895 and died in September 1987.

Benkelman Beam Proficiency Test

We are organising a proficiency test for the Benkelman Beam test in Auckland in the next couple of months. Apologies to those out of Auckland, but if there are members in other centres who want to co-ordinate a similar proficiency round please contact the Technical Working Group.

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by Alvin Carlton*

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Treacle Pavements.

Perhaps the oddest pavement ever laid is one just completed at Chino, California. It is made mostly of molasses, and if it proves all of the success claimed for it, it may point a way for the sugar planters, recently referred to in SCIENCE SIFTINGS, to profitably dispose of millions of gallons of useless molasses which they are said to have on hand. The molasses used is a refuse product, hitherto believed to be of no value. It is simply mixed with a certain kind of sand to about the consistency of asphalt and laid like an asphalt pavement. The composition dries quickly and becomes quite hard, and remains so. The peculiar point of it is that the sun only makes it drier and harder, instead of softening it, as might be expected.



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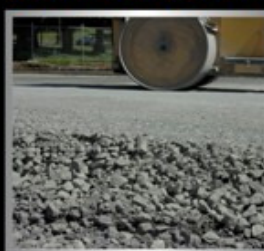
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Half day course with a practical session that covers all you need to know about NDM's and their place in the industry. NDM's are used all over the world and correct operation and understanding of the gauge is absolutely critical. This course will show your staff what it is, how it works and how to transport and store the device – a must if your business uses NDM's.

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**For further information and bookings contact
Stuart Moulding**

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Test Focus - Compaction Curves

In this new section for CETANewZ we will be trying to answer those annoying questions that we all have about working in our industry. Things like “what’s California got to do with Bearing Ratios” and “Do Proctologists *actually* generate Proctor Curves” or even “How many babies does it really take to make one drop of baby oil?”

In this issue.... *The History of Compaction Curves*

The Proctor compaction test and the related modified Proctor compaction test, named for engineer Ralph R. Proctor (1933), are tests to determine the maximum practically-achievable density of soils and aggregates, and are frequently used in geotechnical engineering.

The test consists of compacting the soil or aggregate to be tested into a standard mold using a standardized compactive energy at several different levels of moisture content. The maximum dry density and optimum moisture content is determined from the results of the test.

Soil in place is tested for in-place dry bulk density, and the result is divided by the maximum dry density to obtain a *relative compaction* for the soil in place.

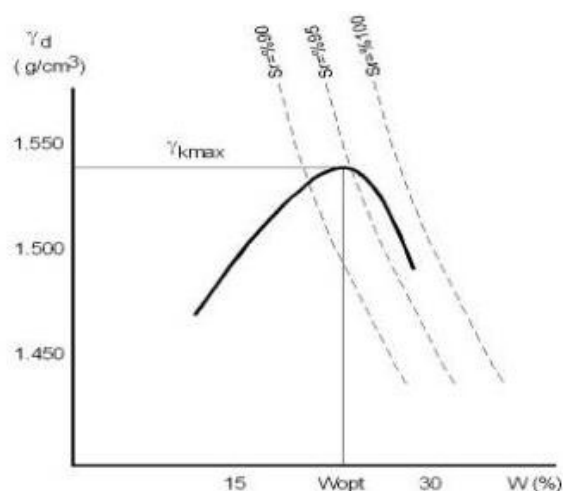
History and Origin

Proctor's fascination with geotechnical engineering began when taking his undergraduate studies at University of Berkeley California. He was interested in the publications of Sir Alec Skempton and his ideas on in situ behavior of natural clays. Skempton formulated concepts and porous water coefficients that are still widely used today. It was Proctor's idea to take this concept a step further and formulate his own experimental conclusions to determine a solution for the in situ behaviors of clay and ground soils that cause it to be unsuitable for construction. His idea, which was later

adopted and expounded upon by Skempton, involved the compaction of the soil to establish the maximum practically-achievable density of soils and aggregates (the “practically” stresses how the value is found experimentally and not theoretically).

In the early 1930's, he finally created a solution for determining the maximum density of soils. He found that in a controlled environment (or within a control volume), the soil could be compacted to the point where the air could be completely removed, simulating the affects of a soil in situ conditions. From this, the dry density could be determined by simply measuring the weight of the soil before and after compaction, calculating the moisture content, and furthermore calculating the dry density. Ralph R. Proctor went on to teach at the University of Arkansas.

Source: http://en.wikipedia.org/wiki/Proctor_compaction_test



“Did you know...”

In NZ it is common for Proctor tests to be done in one of three ways, NZ Standard, NZ Heavy, and NZ Vibrating Hammer. The last one being the cause of many headaches for our industry!!!



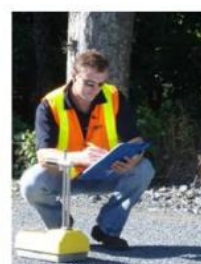
Independent Testing Services

THE AUCKLAND LABORATORY

The Auckland Laboratory rigorously maintains an **independent** and **unbiased** testing facility for our clients as part of our IANZ requirements where: accuracy, confidentiality and customer service are of the utmost importance to us. We have a broad range of clients in both private and public sectors and are happy to assist even if only for **impartial advice**.

The laboratory is **IANZ accredited to NZS/ISO/IEC 17025** for mechanical testing under the areas: 4.01 Aggregate, 4.02 Bituminous Materials, 4.08 Soils, 4.15 Operations by Seconded Personnel and 4.20 Pavement Testing; the scope covers a wide range of national and international test methods. The separate specialist laboratory in Tauranga offers a comprehensive suite of performance assessment and test methods for emulsions and binders.

We are available for **Research and Development** work for both design of and assistance with projects for clients. We have the expertise to arrange and provide advice on a wide range of materials testing and assessment requirements, not covered on our standard scope, either in house or through collaboration with other test facilities, these could be: accredited / non accredited testing or **bespoke options** designed specifically for the client. We are happy to discuss individual requirements.



For more information or to arrange a visit please contact either, Phil Archer, David Aubrey or Howard Jeffery-Wright at *The Auckland Laboratory*—

Phone: Office +64 (0) 9 580-2494

Mobile: Howard +64 (0) 276 837 681

David +64 (0) 272 427240

Phil +64 (0) 272 434813

Email: Aucklandlaboratory@downerediworks.co.nz



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Laboratory Focus

The Hon Judith Tizard, MP for Auckland Central and Associate Minister for Transport, paid a visit to Downer EDI's Auckland Laboratory on the 26th May 2008. Ms Tizard was visiting the Downer EDI Asphalt Production site in Penrose to talk to staff and to see some aspects of the 'business end' of the roading industry.



During her busy schedule Ms Tizard took the opportunity to visit Downers recently relocated laboratory at the Great South Road site, where it operates as an independent accredited business, supporting internal and external clients in the Civil and Roding industry.



Phil Archer (Laboratory Section Head) said Ms Tizard chatted with laboratory staff on a range of topics such as: Technical testing standards, training and the role of technical support within an organization such as Downer EDI.

One broader issue discussed with the technical staff was the benefit gained from looking at whole life costs on projects against solely focusing on initial outlay, thus ensuring longer term quality and durability. From our perspective in the Civil Engineering Testing industry this ties in with our promotion of the importance of factoring in good quality testing / technical support and the role it can play in delivering those outcomes.

The laboratory staff enjoyed Ms Tizard's real interest and knowledge on the service they provide to businesses and projects within the industry, which can all too often be overshadowed by the 'bigger picture'.

Words by Howard Jeffery-Wright, Downer EDI Works, Auckland

If you would like to let the industry know of whats been happening in your lab, flick us an email at info@cetanz.org.nz

Member Profiles

Another new section for CETANewZ. Every issue will feature an interview with one of the associations members.

This issue....Frank Hu from Holcim

What is your current position, who do you work for and briefly describe your role?

My current position is Laboratory Manager, Construction Material Testing Laboratory for Holcim Concrete and Aggregates. My role is to oversee the laboratory operation on a day to day basis. Our laboratory is involved in aggregates, soils, concrete and environmental testing. We are an IANZ registered laboratory with over 40 sampling and testing methods accredited under laboratory's scope of accreditation in concrete and aggregate area. We also perform tests on number of test methods that have not been registered.

How do you see CETANZ benefiting your business?

I believe that CETANZ provides a platform for civil laboratories to interact to each other. It can be where people in the field share their knowledge, solve their problems and move forward together.

What do you enjoy doing when you're not working?

When not working, I enjoy to watch Rugby, both Rugby League and Rugby Union. My favourite teams are Auckland, Blues and Warriors. But I do watch the games between anybody and anybody. I support Chiefs and Hurricanes when they don't play Blues.

If you could visit just one country in the world where would it be and briefly why?

I'd go to France if I can choose. France has so much cultural and historic stuff and French are so romantic - just look at their president. Actually Britain and Italy are among my favourite countries as well for similar reasons. But I guess English are less romantic.

If you could invite 3 people to dinner (dead or alive) who would they be and briefly why?

I'll invite my parents and my sister because I have left my home country for 13 years and it is my sister who looks after them. I always feel guilty that I couldn't be around when they need me



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Standard Alert!

This new addition to the CETANZ newsletter is here to keep you up-to-date with any NZ or joint AS/NZ standards that are under review.

We will keep you informed of any CETANZ work in this area and help represent the Civil Engineering Testing Industry at committee level where possible.

DR08044: Amendment 2 to AS/NZS 4456.4 Masonry Units, Segmental Pavers and Flags – Methods of Test Part 4: Determination of Compression Strength.

DR08045: Amendment 2 to AS/NZS 4456.5 Masonry Units, Segmental Pavers and Flags – Methods of Test Part 5: Determination of Breaking Load of Segmental Pavers

DR08046: Amendment 2 to AS/NZS 4456.9 Masonry Units, Segmental Pavers and Flags – Methods of Test Part 9: Determination of Abrasion Resistance.

DR08047: Amendment 2 to AS/NZS 4456.10 Masonry Units, Segmental Pavers and Flags – Methods of Test Part 10: Determination of Resistance to Salt Attack.

DR08048: Amendment 2 to AS/NZS 4456.14 Masonry Units, Segmental Pavers and Flags – Methods of Test Part 14: Determination of Water Absorption Properties

These drafts are out for public comment now, and the final date for submission is the 10th of April. All are small corrections to wording and instructions.... The most serious being the change to capping procedure for compression test part 4. Some of you may already be doing this as part of your normal routine.

DR08025: Safety in Laboratories Part 9: Recirculating fume cabinets (Revision of AS/NZS 2243.9)

This draft is aimed more at manufactures of cabinets, but there is plenty of information and safety tips for those of you who own and operate ... so check it out.

Want more info go to www.standards.co.nz and click on the "Public Comment" Tab. Here you can download the draft version for an 8 week period and submit your comments.

From the Editor...

CETANewZ is the voice for our industry. If you would like to contribute in any way to this publication by way of adverts or articles - drop us a line at info@cetanz.org.nz

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