

The Editor: Kevin McCue
ASC Canberra ACT 2601
asc@netspeed.com.au
Secretariat: Barbara Butler
barbyb@tpg.com.au
Phone/Fax 03 9457 2877



AEES is a Technical Society of
IEAust The Institution of Engineers
Australia and is affiliated with IAEE

3/2004

AEES Newsletter

Contents

President's Column	1
AEES Executive/Changes to Secretariat.....	2
Earthquakes in Australia, Jul – Sep 2004	2
News	
John Connell gold medal	2
Nuclear waste repository	3
Qld quake monitoring/Bakun Dam Malaysia	4
Australasian Conference	4
Earthquake-proof housing	4
The San Andreas Fault up close	5
Principles of Earthquake Resistance	7
AEES/EERI proposal.....	8

President's Column

Greetings once again to all our members and recipients of this Newsletter. This will be my last "President's Column" (for a long while at least) as the South Australian executive committee for AEES finishes our 3-year term at the AGM on November 5 in Mt. Gambier. For those of you not able to make it to this year's conference and AGM I say thank you for your support of the executive and AEES over the past three years. I believe that with your support and feedback we have been able to make significant inroads on most of the society's aims that were identified at the last AGM under Bill Boyce's stewardship in 2001.

Which brings me to this year's conference. The technical programme has been posted on our website (thanks Vaughan!) and I think you will agree that it looks quite good. It has a bit more technical content in our core areas of strength (structural engineering and engineering seismology) than the past year or two although the Friday afternoon session is still largely focused towards "Earthquake preparedness, response and recovery" management issues that we hope will attract newcomers from the emergency services and local government sectors. I think that this year's conference, by running over the weekend, will be a bit more relaxed than in previous years. With Saturday afternoon free for delegates to pursue leisure activities before meeting up for the conference dinner I anticipate that we will all have a great time in addition to learning even more about earthquake engineering and seismology.

Before I close, I should highlight two items that were commented on in my last newsletter and that have since been acted upon. First, I have met with Professor

Andrew Whittaker who was designated by EERI to represent them in discussions with me to identify and draft a list of joint activities for our respective organizations over the next few years. The outcome of our meeting has been put as a memorandum (attached page 7) which has already been endorsed by EERI and it will be put to our members at this year's AGM for endorsement. Anyone wanting to comment on it should nominate a proxy or send their feedback via one of the committee members (or Barb Butler). As you will see, most of the work falls on my shoulders initially, while not committing AEES financially, but eventually I expect that there will be several working groups formed to spread the workload on matters of mutual interest.

Second, I am presenting a paper on the developments in AEES's involvement with USAR (Urban Search and Rescue) training for Engineers at this year's conference. For those that can't attend I am pleased to report that John Wilson and I attended the Category 1 USAR Course for Engineers that was held in Wellington NZ in September. The aim is that John and I will eventually be giving similar courses in Australia. Further, I am happy to report that the first course looks like going ahead in Adelaide sometime in early 2005 with the financial support of the South Australian State Government. Depending upon demand, it may be repeated later in the year as well as being offered in other capital cities. Ultimately, we want to have a significant body of USAR trained Engineers in each state that are capable of participating with, or in support of, USAR task forces and teams all around Australia. While much of the skills engineers need in support of USAR teams are embodied in their normal training and workplace experience, understanding the legislative and legal framework of USAR teams and the teamwork demands is also extremely important.

In closing, let me say how pleased I am to report that Barb Butler will be at our conference in Mt Gambier to run the registration desk – see you at "the Mount"!

Mike Griffith

AEES Conference
Mt Gambier South Australia
Friday 5th - Sunday 7th November 2004

AEES Executive

President	Mike Griffith
Secretary	David Love
Treasurer	Peter McBean
Secretariat	Barbara Butler*
State Representatives:	
Qld	Russell Cuthbertson
NSW	Michael Neville
ACT	Gerhard Horoschun
Vic	John Wilson
Tas	Vagn Jensen
SA	Jim Wilson
WA	Hong Hao
Web master	Vaughan Wesson
Newsletter Editor	Kevin McCue
* see note below	

Forthcoming Changes To Secretariat

Would all members please note that as of November 12, 2004 there will be some changes to the Secretariat of AEES.

For all enquiries to do with membership and subscriptions, please contact:

Technical Societies Administrator,
Engineers Australia, PO Box 6238,
KINGSTON ACT 2604.

Fax: 02 6273 2358

(This applies equally to both members and non-members of Engineers Australia).

For other enquiries and anything to do with the annual conference, scholarships etc. please contact Barb Butler as usual, but note that the contact details have changed to the following:

email: barbyb@tpg.com.au

Phone/Fax 03 9457 2877

Earthquakes in Australia

July – September 2004

The following list of earthquakes was extracted from the Geoscience Australia website which includes information from ES&S, PIRSA and CQU. The computed focal depths of all events were within the upper crust (less than 20 km deep) but precise depths are uncertain and so not shown.

It was a very quiet quarter with no damage reported and no local earthquake exceeding magnitude ML 4.0, the largest near Kununurra WA on 25 September.

Several large earthquakes on the Australian plate boundary are also shown for interest, countries where Australian engineers, seismologists and disaster response managers might be asked to help when the next damaging earthquake occurs.

Earthquakes, in the Australian region, July – September 2004

	Time	Lat S	Long E	ML	Place
Jul					
01	11:58:10	22.94	127.59	3.0	W L Mackay, WA
01	04:39:40	50.06	162.88	6.2	Auckland Is, N.Z.
04	05:06:07	19.83	133.90	3.2	SW Tennant Ck NT
07	02:20:22	31.53	138.50	2.6	Hawker SA
11	04:35:18	28.71	137.64	2.7	N L Eyre SA
14	04:06:55	34.13	139.21	2.5	Clare SA
15	05:54:45	19.71	133.97	3.4	Tennant Creek NT
16	21:15:32	30.52	117.04	2.4	Burakin WA
17	22:56:08	30.48	117.07	2.0	Burakin WA
21	15:55:07	31.71	141.51	2.7	N Broken Hill NSW
23	14:21:39	30.46	117.07	2.3	Burakin WA
26	17:20:30	33.58	118.32	2.2	Dumbleyung WA
26	17:11:35	33.61	118.27	2.3	Dumbleyung WA
27	18:59:31	17.75	122.55	2.2	Broome area WA
27	09:16:16	19.89	134.04	2.1	SW Tennant Ck NT
28	14:08:36	29.93	141.41	2.9	SW Tibbooburra NSW
28	09:51:27	33.59	118.29	2.5	Dumbleyung WA
28	06:02:14	30.40	117.73	2.2	Beacon WA
28	03:56:28	00.48	133.04	6.6	N Coast New Guinea
29	15:00:51	30.41	117.75	2.2	Beacon WA
30	21:46:20	31.12	138.46	3.0	Parachilna SA
Aug					
02	08:50:40	33.56	138.62	2.6	N of Clare SA
02	08:25:36	33.56	138.61	2.7	N of Clare SA
13	15:35:41	30.42	117.09	2.2	Burakin WA
14	19:58:03	19.83	133.91	2.2	Tennant Creek NT
14	15:37:28	26.09	130.95	3.5	S of Uluru, SA
16	19:45:21	31.08	138.52	3.3	Parachilna SA
21	19:38:21	19.83	134.01	2.0	SW Tennant Ck NT
21	13:47:05	25.94	151.43	2.0	SW of Gayndah Qld
23	01:59:10	31.19	117.52	2.0	Wyalkatchem WA
29	14:02:03	34.72	148.18	2.3	SE Cootamundra NSW
31	13:27:50	30.59	117.01	2.5	SW Burakin, WA
Sep					
02	22:19:41	30.86	117.10	2.3	Manmanning WA
02	10:56:54	26.55	131.89	2.8	SW of Ernabella SA
04	10:44:34	30.90	117.03	2.8	SW Manmanning, WA
10	20:29:56	30.56	117.01	2.6	W of Burakin, WA
10	08:47:51	30.55	117.06	3.0	Burakin, WA
10	00:37:42	31.73	117.06	2.0	SE Meckering WA
13	16:27:51	19.88	134.00	2.5	SW Tennant Ck NT
13	12:58:40	30.57	116.97	2.0	Ballidu WA
14	15:53:30	16.50	128.71	2.4	S of Kununurra WA
15	16:23:13	29.65	125.04	2.8	Gt Victoria Desert WA
21	11:54:00	34.69	148.58	2.8	Binalong NSW.
25	23:09:25	15.10	129.67	2.8	Kununurra WA
25	15:10:42	16.78	129.15	4.0	SE Kununurra WA
26	15:52:00	16.68	129.15	2.7	SW Kununurra WA
26	10:40:40	25.66	137.04	2.0	Simpson Desert NT
26	09:03:39	22.81	113.76	2.8	W of Giralia WA
29	18:09:40	31.85	123.41	2.3	E Norseman WA

NEWS!

John Connell Gold Medal

Former President of AEES, Mr Bill Boyce was recently made the 2004 recipient of a prestigious Structural College award.

The award is named after Mr John Connell, principal and founder of the firm of John Connell and Associates, which now practices throughout

Australasia under the name of Connell Wagner Pty Ltd. Mr Connell is considered to have made an outstanding contribution to the practise of structural engineering in this country and was also responsible for exporting Australian engineering skills into Asia in the 1970s and 1980s. He has continued to be involved with Connell Wagner Pty Ltd since his retirement.

Criteria

- The recipient must be (or have been) a practising structural engineer who has made a significant contribution, preferably of both national and international significance, to the standing and prestige of the structural engineering profession.
- The recipient may come from a background of consulting engineering, government service, manufacturing, construction, academic pursuits, or service with the professional organisation, such as the Institution itself.
- The recipient need not necessarily be of Australian nationality, nor should he/she necessarily reside in Australia. However, if the recipient is not an Australian national, the contribution that he/she has made must have had a significant impact in Australia.
- It is anticipated that, on most occasions, the award will be made to an Australian national.
- The recipient must have reached a senior position and be widely recognised to be of eminent standing within the profession.

Form of the award

A specially struck gold medal incorporating the insignia of the Engineers Australia and likeness of John Connell, mounted and framed with the recipient's citation.

Citation for William Henry Boyce

Bill Boyce's contribution to the structural engineering profession is prolific, diverse and erudite.

His influence ranged from design of bridges and buildings, flood mitigation studies, design of marine and water retaining structures, the study of storm and earthquake effects on structures, and he actively supported the education of student and graduate engineers.

During his career he shared his knowledge in structural engineering with young engineers and participated in the development of engineering schools in Queensland and Papua New Guinea. He taught design and was appointed Reader/Associate Professor in Civil Engineering at the University of Queensland. He presented the first Edwin John Grigg Memorial Lecture for innovative structural engineering in 1985. He assisted the vacation employment of young engineers from the Solomon Islands and Fiji.

His body of work includes a plethora of broad ranging publications from risk evaluation of structures to the interpretation of accelerograms. He was actively

involved with the development of the Australian Earthquake Code AS1170 Part 4, he was an elected member of the Board of Professional Engineers of Queensland and is a vigorous contributor to learned journals and discussions in relation to structural engineering. He retired from KBR Pty Ltd Brisbane office in 2002 and continues his part-time lecturing at the University of Queensland.

William Henry Boyce has made an outstanding contribution to structural engineering.

Greg Schofield
Chair Structural College

Conferees of the John Connell Gold Medal

- 1998 Prof Robert Warner FTSE MIEAust CPEng University of Adelaide Reinforced concrete research.
- 1999 Mr Richard Kell AM FTSE HonFIEAust CPEng Cardno MBK.
- 2000 Dr John Nutt AM FTSE HonFIEAust CPEng Ove Arup, Director Ove Arup Australia.
- 2002 Mr Peter Bruechle FIEAust CPEng Retired - prev Bruechle, Gilchrist and Evans, Fire engineering design.
- 2004 Mr Bill Boyce FIEAust CPEng, Principal Engineer Civil Structures, Kinhill Pty Ltd Brisbane.

[Congratulations Bill from all in AEES!!]

Plans for low level nuclear waste repository dumped

The federal government has ruled out South Australia as a site to store low-level waste produced by the Lucas Heights nuclear reactor in Sydney's south.

The decision ends a fight between the SA and federal governments, which threatened to affect the recent federal election campaign and impact on the Coalition's hopes of retaining three marginal seats in the state. It also follows the state government's recent victory in the Federal Court that ruled that the federal government had acted improperly in acquiring land for the dump near Woomera.

Federal finance minister Nick Minchin said the commonwealth would store its own radioactive waste in purpose built facilities on commonwealth-owned land, and all states will have to look after their own waste.

SA premier Mike Rann welcomed the move, telling ABC Radio his state remained happy to look after its own radioactive waste but not that produced by other states. The Australian Democrats have also stated their approval of the decision.

However, Queensland premier Peter Beattie has ruled out establishing a nuclear dump in his state and senator Kim Carr, federal Labor's science spokesman, said the lack of a national repository could lead to regulators refusing to issue a licence for a replacement reactor at Lucas Heights.

South East Queensland Water Corporation Seismic Network

ES&S has announced that from 1 August 2004 it has been performing the routine seismic data processing and providing an earthquake alarm service for the South East Queensland Water Corporation. They operate a network of six seismic stations close to Brisbane to monitor dams in the area. All data is radio telemetered into a central computer system and ES&S access this data via the Internet.

This project follows on from the successful installation by ES&S of the Queensland State government seismic network. This network has now been operating for three years and consists of 22 sites in total.

For further information contact either Russell Cuthbertson or Wayne Peck at ES&S.

Bakun Dam, Malaysia

ES&S has been selected to supply equipment for both a seismic and a hydrological monitoring network around Bakun Dam in Malaysia, which is currently under construction in a remote area of Sarawak, about 200km southwest of Brunei.

The seismic network comprises five stations, four of which are remote stations with Kelunji Echo seismic recorders and short period seismometers using VSAT telemetry to send continuous and triggered data back to the dam site office which will be running the eqSuite data acquisition and analysis software system. The fifth station is a Kelunji Echo accelerograph that will be installed at the dam site. A sixth Kelunji Echo will be used as a Network Time server to provide accurate timing for the computing network at the central office.

ES&S will provide on-site training for the local operators in the installation and operation of the seismic hardware and software systems. ES&S is also providing a hydrological monitoring network of rain gauges and river level sensors.

For more information, feel free to contact either Adam Pascale or Wayne Peck at ES&S.

Australasian Conference

Earth scientists in New Zealand and Australia recently celebrated a successful bid to host one of the world's major geological conferences in the region in 2012.

The 34th International Geological Congress (IGC), to be held in Brisbane in August 2012, is expected to attract at least 5000 delegates from about 100 countries (Ed. - that is five thousand!). Organisers will invite delegates to visit New Zealand for field trips and workshops during and after the 10-day event.

IGC is held every four years and has been staged in Australasia only once before in its 124-year history - in Sydney in 1976.

The Society website/email list

Dear AEES Members,

The AEES web site is at www.aees.org.au. Any contribution from you on the following topics is most welcome:

- details of interesting recent publications
- significant research projects in earthquake engineering (in Australia?)
- links to other relevant Web sites

Please send your contributions/suggestions via email.

The AEES email list is operated by the Seismology Research Centre, Melbourne. If you would like to register please notify me at vaughan@seis.com.au

Vaughan Wesson

Earthquake-proof housing gets shake-up

Michael Hopkin

Mexican project brings the house down in quest for safer buildings.



Replica houses are shaken in order to imitate earthquakes. *Courtesy of UNAM*

In a giant lab in Mexico, Sergio Alcocer is shaking buildings beyond breaking point, in a bid to find the recipe for affordable housing that stands up to frequent earthquakes.

Earthquakes in rich countries such as the United States or Japan do not tend to cause huge numbers of casualties, because buildings are designed to withstand the shaking. But in poorer areas such as parts of Iran, Turkey or the slums of Mexico, cheaply built housing can collapse almost instantly during an earthquake, killing thousands and stripping families of their only asset.

If you look at where people are dying, it's all in low-cost housing, says earthquake expert Adam Crewe, of the University of Bristol, UK.

Alcocer, who heads the engineering institute at the National Autonomous University of Mexico in Mexico City, is responsible for setting legal minimum standards for the masonry from which most houses in the city are constructed.

He carries out his research with the help of a US\$500,000 'shaking table', which is a 4-metre-wide, square platform mounted on electronically controlled hydraulic jacks. He and his colleagues build replica

houses of up to three storeys on the platform, then hit them with simulated quakes until they fall down. Previous tests involved simply applying a load to an isolated wall until it crumbled.

Rock and roll

The mock houses' ordeal is based on a real earthquake, of magnitude 6.8, that struck Acapulco on Mexico's Pacific coast in 1989. A computer uses accelerograms obtained during the earthquake to tell the shaking table's four vertical and four horizontal jacks how to recreate the tremor. The researchers can then alter the intensity, duration or frequency of this shaking to provide an even sterner test of a house's integrity.

The shaking table provides a stark demonstration of how fast a building can succumb to an earthquake, says Alcocer. *You can see the damage in 20 seconds* he says.

So far the team has found that it is not the masonry blocks that fail under the onslaught, but rather the mortar that holds them together.

Alcocer argues that cement manufacturers should be issued with pamphlets that tell builders exactly how to mix the perfect mortar. *It doesn't matter what kind of bricks you use*, he says. *If the walls are glued together properly they won't fall down.*

The shaking table is a useful ally in the search for reliable housing in countries that cannot afford expensive building techniques, says Roger Musson, a seismologist with the British Geological Survey. *If you put the ultimate in earthquake protection into every building it would be wasteful*, he says.

Mysteries of San Andreas Fault explored by drill

Dean E. Murphy

PARKFIELD, Calif., Sept. 2 - There is nothing more nerve-racking for many Californians than the unpredictable and irritable San Andreas Fault, which leveled much of San Francisco the last time it kicked up a big earthquake in 1906.

That might explain one of the more anxious questions commonly posed to several dozen scientists who gathered on a cattle ranch here on Thursday to marvel at a huge drill mounted on an 18-storey rig, poking at the fault. Might the drilling not trigger an earthquake? *We get asked that all the time*, said one of the scientists, Kaye M. Shedlock, a geophysicist with the National Science Foundation in Arlington, Va. *If drilling caused earthquakes, Texas would be incredibly seismically active. Drilling does not cause earthquakes.* But the glimmer in Dr. Shedlock's eye hinted at the real reason she and the others had convened here for an unusual session of geologists, seismologists, geophysicists and other scientists intrigued by the mysteries of the San Andreas.

In a sense, you hope it does happen, she said of an earthquake. *We just want to make sure we have all of our instrumentation in place first.*

Dr. Shedlock was not talking about a Big One - the kind that measured 7.9 on the Richter scale in 1906 - but smaller 2.0 quakes that are not felt on the surface.

Scientists chose the sunburned hills here for their drilling experiment because they straddle a section of the San Andreas that has a history of the so-called micro-earthquakes, about 30 of them in the past two decades alone.

The more unstable stretches of the 750-mile tectonic cleavage are to the south and the north, though the Parkfield area, about halfway between Los Angeles and San Francisco, has had big jolts.

Dubbed by the National Science Foundation as a modern-day journey to the center of the earth, the drilling here is part of a \$250 million project called EarthScope that is studying the tectonics of North America. Though the scientists say the project is not intended to devise a way to predict earthquakes, that has been one of the biggest unspoken expectations since a test hole was drilled here two years ago.

The first phase of the San Andreas study ends this month as the hole being bored comes within 500 m of the fault zone. After reviewing what has been gleaned, the scientists will push farther next summer, expecting to reach the seismically active fault zone in August or September.

We are giddy with success right now, said Gregory van der Vink, the EarthScope project director. *We are now turning the drill toward the fault and aiming it at the target earthquakes.*

Mark D. Zoback, a geophysics professor at Stanford University, said scientists in Japan had done shallow drilling near the Nojima fault in that country, but never before has anyone attempted to drill directly into a fault zone. When drilling is completed, the borehole will be about 5 km long and about 3 km deep.

Scientists are using the drilling to study just about everything they can. Rocks and other sediments from the borehole are separated from the muddy mixture in the shaft and shipped to Texas for analysis. Even gasses like helium and hydrogen that seep into the borehole are being trapped and packaged for shipment to Germany, where they are to be studied by scientists in Potsdam.

Dr. Zoback said no possible clue to the mechanics of the San Andreas was being overlooked, with more than 100 scientists from around the world eager to get a first-hand glimpse of the fault and to test a variety of hypotheses about earthquakes.

Perhaps most important, the project involves placing instruments in the borehole that will measure the physical conditions of the fault zone. Already, data from instruments in other locations are being transmitted to computers in a lab next to the drilling rig, enough each day to fill 40 DVD's, or the equivalent

of 100 books of 400 pages each. The material is also being posted on the Internet.

Until now, our ability to study earthquakes has depended on the location of the nearest instrument, Dr. Zoback said. It is a science hampered by lack of direct knowledge from the fault zone. That is about to change.

The actual drilling into the San Andreas is expected to be tricky. Dr. van der Vink said researchers had narrowed the most seismically active zone to an area about the size of a football field, but they wanted to be more precise, perhaps within 10 m of the seismic activity. Several scientists said the drilling might be intrusive enough to set off one of the 2.0 magnitude quakes, but nothing larger.

Provided by Dr Cvetan Sinadinovski GA

Forthcoming Conferences

• 5 - 7 Nov 2004 AEES Conference and Annual General Meeting, Mt Gambier SA.

• **1 - 3 December 2004** The 18th Australasian Conference on the Mechanics of Structures & Materials. Perth, Western Australia.

www.civil.uwa.edu.au/conferences/acmsm18/

• **31 Jan – 4 Feb 2005** Australian Institute of Physics 16th Biennial Congress, "Physics for the Nation".

Held during the World Year of Physics, the congress will celebrate the 100 years since Einstein's discoveries in relativity, quantum theory and Brownian motion and will highlight the contribution of physics to Australia. The occasion will bring together an unusually large and diverse group of scientists from over 15 different Australian discipline groups who share a common interest in physics, including the GSA Specialist Group for Solid Earth Geophysics.

The deadline for early bird registration is 19 November 2004. For more information, visit: <http://rsphyweb.anu.edu.au/admin/AIPCongress2005/>

• **11-14 September 2005** Engineers Australia will be hosting the Australian Structural Engineering Conference 2005 at Newcastle Town Hall. The theme for the conference is "Structural Engineering - Preserving and Building into the Future". A comprehensive program is currently being developed and further information on this can be found on the conference website at www.asec2005.com

New Books

The Web of Science Vol I 1836-63, Vol II 1864-78 by Ann Moyal, Australian Scholarly Publishing, Melbourne, 2003.

This beautifully published set of books covers the scientific correspondence of the Rev W.B. Clarke, the

so-called father of Australian geology and considered by many to be the original discoverer of gold in Australia. He was also a pioneer in the study of Australian earthquakes.

That two volumes were devoted to his correspondence shows what a prolific writer, curious natural philosopher and industrious explorer he was, and how isolated he must have felt as an early scientist in Australia. Ms Moyal has included copious footnotes that will be a rich source of information for all those adventurous enough to follow.

Special price for members of GSA is \$175 if purchased direct from the publisher. I hope to bring you a review next Newsletter (Editor willing).

Tectonics, Seismicity and Crustal Structure of the Ontong Java Plateau: Solomon Island Arc Convergent Zone, Southwest Pacific Ocean.

Edited by: P. Mann and A Taira

Tectonophysics Volume: 389, Issue: 3-4 [SPECIAL ISSUE]

<http://www.elsevier.com/locate/tecto>

STOP PRESS

Founding President of IEAust, Mr Charles Bubb has been awarded a trophy by IEAust to mark his 50th year of membership. The award was presented at a Fellows Luncheon held at the Royal Canberra Golf Club on 22nd October 2004.

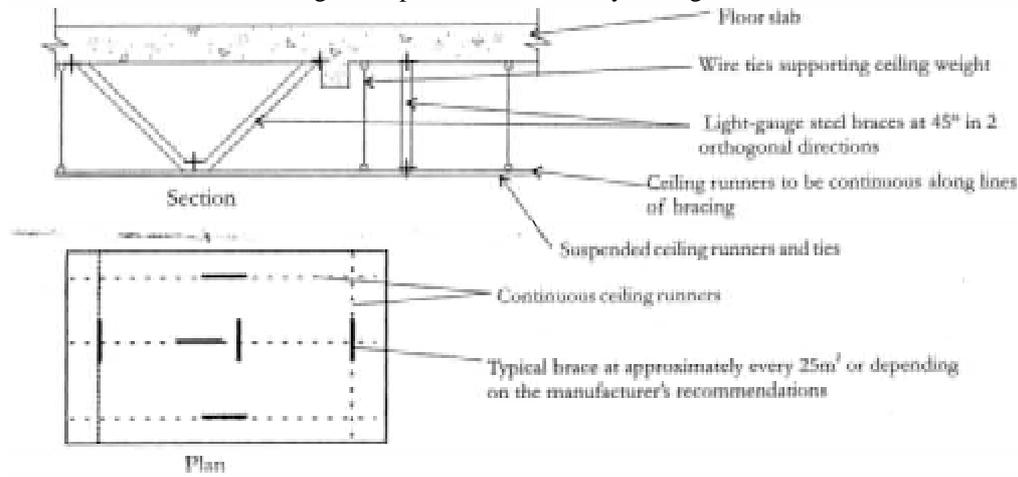


Principles of Building Earthquake Resistance No. 28

Bracing Architectural and Mechanical Elements

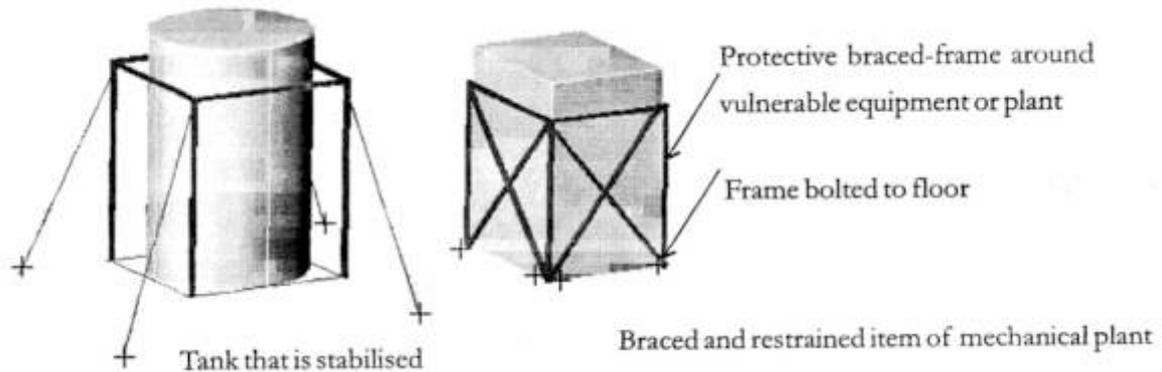
1. Suspended ceilings

Serious injuries to building users and large financial losses are prevented by bracing suspended ceilings to the floor or the roof structure above. If unbraced, suspended ceilings will swing about and crash against structural and other elements and damage fire sprinkler heads. Many ceiling tiles will fall.



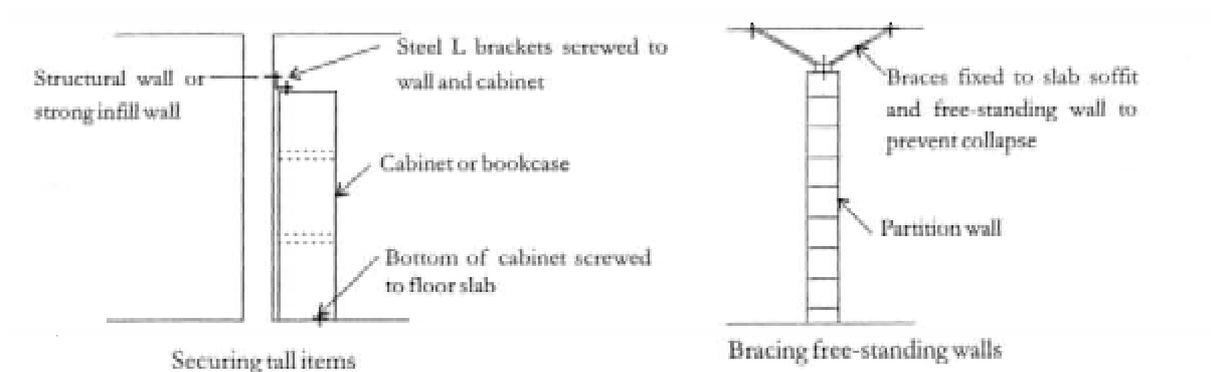
2. Mechanical equipment

All mechanical equipment including water tanks, gas boilers, air conditioning equipment and other plant should be braced and bolted down to the floor slabs to prevent sliding and overturning. Horizontal accelerations near the roof of a multi-storey building can exceed 1.0g and so serious damage is likely if plant is unrestrained.



3. Building contents

Restrain heavy and tall contents that will slide around and overturn due to horizontal acceleration. This may cause serious damage and risk injury to occupants. Bookcase, storage cabinets and partial-height partition walls should be fastened to structural elements.



**US-AUSTRALIA BILATERAL COMMISSION ON EARTHQUAKE ENGINEERING
MICHAEL GRIFFITH, UNIVERSITY OF ADELAIDE AUSTRALIAN CO-CHAIR
ANDREW WHITTAKER, UNIVERSITY AT BUFFALO, US CO-CHAIR**

MEMORANDUM

To: EERI Board of Directors
AEES Board of Directors
From: Michael Griffith and Andrew Whittaker
Date: August 31, 2004
Subject: EERI-AEES Memorandum of Understanding
Griffith/Whittaker meeting in Adelaide, Australia, August 17, 2004

Michael Griffith and Andrew Whittaker, co-chairs of the US-Australia Bilateral Commission on Earthquake Engineering, met at the University at Adelaide, Australia, between 11 am and 1 pm on August 17, 2004, to discuss the EERI-AEES Memorandum of Understanding and to explore areas of potential collaboration between the two organizations. Listed below are the key outcomes and recommendations of the meeting.

1. EERI and AEES should exchange the proceedings of the annual meetings of their organizations in electronic format and make the pdf files available to members of the other organization.
2. EERI and AEES should exchange electronic copies of newsletters and make the pdf files available to members of the other organization.
3. The Presidents of EERI and AEES should prepare a column for publication in the newsletter of the other organization once per year. That column should identify key work and activities of their organization in the past year and upcoming year, including dates of annual meetings and important publications.
4. At least one representative of EERI and AEES should endeavor to attend the annual meeting of the other organization and make a summary presentation on the work and activities of their organization. The host organization should waive registration fees for the hosted representative.
5. Whittaker and Griffith will approach the US National Science Foundation (NSF) and the Australian Research Council, respectively, to seek a modest level of financial support for travel (see 4. above) and seed dollars for research collaboration.
6. EERI and AEES should move quickly to identify formally research subjects of interest to both organizations. Sample subject areas identified by Griffith and Whittaker are; (a) masonry structures, (b) emergency management and response, and (c) engineering seismology.
7. EERI and AEES should cooperate on post-earthquake reconnaissance. If an earthquake reconnaissance team is formed by one of the two organizations (e.g., EERI), that organization should invite a representative of the other organization (e.g., AEES) to join the team at no cost to the lead organization (EERI in this instance).