

pt news

NEWSLETTER No 3 - 2007

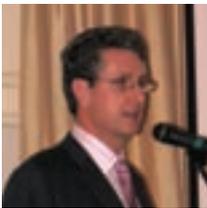
ACCREDITATION OF SITE PERSONNEL:

Ten people have completed their Certificate IV Workplace Training course to become PTIA certified trainers. The first courses, focussed on mono-strand post-tensioning procedures, will be conducted in September this year. PTIA intends that all corporate member site workers will be trained and assessed. On successful completion of the courses, workers will be issued with a "ticket of competency" which will be valid for 12 months, with renewal based on workplace assessment, and will be employer specific. Refresher courses will be mandatory every three to five years depending on the skill level attained.

Dates and venues of future courses will be advised in the next newsletter.

PTIA celebrates its first anniversary

The month of August 2007 marks the first anniversary of the incorporation of the PTIA in Australia.



DAVID PASH

We are very pleased with the development and growth of the Institute during its first year. The activities undertaken in our foundation year were primarily administrative matters such as establishing the constitution, drafting the code of ethics, developing the membership criteria, getting

the website up and running and forming the Institute's Working Committees. With the basic framework in place and operational we are now able to grow our membership base and add significant value to the construction industry. I would like to thank those of you who have given us feedback on our membership criteria and confirmed their relevance for a viable and competitive Post-Tensioning Industry in the 21st century.

The Corporate membership category of the Institute represents the post-tensioning contractors in Australia. We have invited all PT companies currently trading in Australia to become members and I am pleased to report that the majority of these companies, not all, believe in our vision of "promoting higher standards of design and construction" and raising their own standard for the benefit of all stakeholders in the industry.

Although many of these companies do not have certified anchorage systems, do not have the level of insurance cover, do not have formalised QA and OH&S systems, and may not employ the NPER3 registered engineers, they are working with our external auditor to raise their own standards to meet the

corporate membership criteria. Our hope is that during the next twelve months we see more PT contractors joining the Institute.

The major work of the Institute is conducted through our working committees who have done an excellent job during our first year of operation. The technical committee has prepared seven technical documents from watertight concrete specifications to early stressing concrete and helical anti-burst reinforcement details. Their work is ongoing; and I urge you to view all these documents on our website. As I briefly mentioned in the last issue, the Work Standards committee has developed and is rolling out our "PTIA skills ticket training courses" in three categories and our first graduates from these classes will be working in the industry later this year.

We were delighted with the success of our first PTIA seminar Latest Developments in Post-Tensioned Concrete Structures, and will be conducting more seminars in the various states of Australia (see report on page 3).



Just a reminder that the PTIA is hosting a cocktail function during Concrete 07 in Adelaide. Although not published in the conference program, please come and join us for a few drinks on Friday 19th October at the conclusion of the day's conference proceedings.

DAVID PASH
President

PROJECT REPORT

Location: Townsville, QLD

Client: John Holland Macmahon Joint Venture

Division: Structural Systems (Nothern) Pty Ltd

Scope: Fabrication, Installation, Grouting and Stressing of Anchors

Dates: September 2006 to January 2007

Ross River Dam Ground Anchors



ROSS RIVER DAM IS LOCATED 20KM southwest of Townsville Queensland and is not only the major water supply for the cities of Townsville and Thuringowa but also protects these cities from flooding.

As a result of advances in the international dam standards, the entire dam was upgraded to comply with these standards. This included improvements to the concrete spillway and installation of radial gates to increase capacity.

The upgrade work to the spillway involved lowering the crest some 3.8m and providing a new curved 'ogee' crest at the original height. SSL was employed to carry out the works for 9 permanent ground anchors plus additional post tensioning work to support the radial gates.

SSL was responsible for the fabrication, installation, grouting and stressing of the ground anchors. The anchors were up to 51m long, each providing a force of 875 tonnes. Each anchor consisted of 50 No. 15.2mm strand, individually sleeved into sheathing over the free length allowing the strand to extend without restraint, while the remaining 11 metres of bare strand, called the bond length, provides a bond to the grout which in turn is bonded to the surrounding rock, providing the anchoring zone.

The anchors were transported on a specially designed trolley system and installed into pre-drilled holes in the dam crest and down into bedrock. This was followed by a careful grouting process. After the grout has achieved the required strength, the anchors are stressed to their design load using a jack capable of providing a force of 1250 tonnes.

Structural Systems experienced workforce enabled this job to be completed on time and within budget.

FIRST PTIA SEMINAR

The PTIA held its first seminar in NSW on 22 August 2007 at the Epping Club. The seminar was undertaken under the auspices of the Concrete Institute of Australia and had the theme, "Latest Developments in Post Tensioned Concrete Structures".

Over 140 people attended. Mr David Pash, Chairman of the PTIA, hosted the seminar and initially outlined the reasons for, and the aims and objectives of, the PTIA under the slogan of "ensuring standards and accreditation for the post tensioning industry". He also thanked the various CIA Annual Sponsors as well as the specific seminar sponsors, post tensioning software design suppliers Bentley, Hearne, Inducta and Prestressed Concrete Design Consultants, for their support.

A total of six technical papers were presented covering subjects as diverse as latest design, recent special applications, achieving watertight concrete, marine applications and many bridge types – all incorporating PT techniques. Questions from the floor were taken at the conclusion of the presentations, and delegates continued their discussions over refreshments at the end of the seminar.

Similar seminars will be staged in Brisbane in September and Melbourne in early 2008, and will follow to other states during 2008. It is anticipated that such seminars will be staged each year in future, with participating speakers representing consultants, authorities, contractors as well as industry involved in major or unusual projects with PT applications.



WORKS COMMITTEE REPORT – TRAINING AND PROCEDURES

In *Newsletter No. 1* the Works Committee advised that initial emphasis was to be focused on mono-strand post-tensioning procedures and training to accredit all site workers on building projects. The PTIA will commence training courses for Mono-strand stressing in Sydney initially, and these courses will then be continued in all other states of Australia and New Zealand as demand arises.

The PTIA has identified ten trainers and these persons have all now completed their instruction to be PTIA certified trainers (Certificate IV in Training and Assessment component training with emphasis on Workplace Training). During July, the detailed content of the courses will be developed and trialled to test that the appropriate standard of understanding and skill will be acquired. Similarly during July a proposed testing / examination regime will be trialled, because once the formal courses are underway in August/September the PTIA will only issue a ticket of competency to those persons who have demonstrated via testing that the required level of skill/knowledge has been achieved. The tickets will be employer specific and limited to a 12 month period. Workplace assessment will be required for annual renewal for subsequent years. Refresher courses will be mandatory every three to five years depending upon skill level attained.

NOTICE OF DATES AND VENUES FOR THE FIRST COURSES WILL BE CIRCULATED TO ALL CORPORATE MEMBERS. THESE COURSES WILL COMMENCE BEFORE ISSUE OF THE NEXT NEWSLETTER AND ARE ONLY OPEN TO EMPLOYEES OF CORPORATE MEMBERS OF PTIA.

Another of the first actions includes the rewriting of the Code of Practice to incorporate the latest techniques and systems. As previously advised preliminary discussions commenced with WorkCover NSW and the style and format have been progressed. A submission to WorkCover NSW for its review was anticipated in June 2007 but has been delayed to take advantage of the detail that will be developed in the training courses.

The PTIA Board has instructed that the procedures documents and training regimes should all emphasise appropriate and safe work practices under the theme "ensuring excellence and accreditation for the post-tensioning industry" and that these documents and courses should all stress the importance of achieving more than the minimal of compliances to enhance the perception and delivery of post-tensioned products. The PTIA will also develop a series of DVD's covering various aspects of all site based activities under the theme, "Stress Safe – Stress Smart".

FUTURE PENETRATIONS IN POST-TENSIONED FLOORS

A question often asked of post-tensioned slab systems is what happens if we wish to make a penetration in the slab after construction. From time to time it has been brought to our attention that certain members of the building profession see this question as a major obstacle and are reluctant to accept the use of prestressing in some types of buildings. This is often due to a perceived lack of flexibility in the structure when it comes to the formation of openings through the slabs some time after construction.

No building system can be infinitely flexible in terms of future tenant requirements. Whether a slab is constructed from post-tensioned concrete, pre-cast concrete, structural steel or insitu reinforced concrete there will be certain areas such as main beam strips where holes cannot be accepted without significant difficulty.

Locating post-tensioning tendons Tendon locating is not difficult. Prior to casting the slab, stainless steel staples are used to secure the post-tensioning ducts to the formwork. When the formwork is struck, the position of the tendons is obvious, especially if the staple lines have been linked by painted lines.

Cutting of tendons (bonded tendons) Bonded tendons are located within oval shaped galvanised ducts which are injected with cement grout following the post-tensioning procedure. Consequently when such a tendon is severed, the free end will become de-tensioned but after a short transmission length the full tendon force will be effective. This distance is in the order of 600 to 800mm.

Present quality assurance methods adopted by PTIA members and expert supervision ensure that the tendons have been adequately grouted after the application of prestress. Should it be necessary to cut tendons this can easily be achieved using well established methods (refer to a PTIA member company) and in short, whilst the modification of a post-tensioned slab may require more planning than other forms of construction, its use will present the client with a building which is both economical to construct and flexible for its life.

DEMOLITION OF POST-TENSIONED STRUCTURES

In the case of post-tensioned structures using bonded tendons, demolition can be carried out using techniques similar to those used to demolish reinforced concrete structures. Due to its induced compression the concrete is significantly harder and whilst tendons are made from high tensile strand there is considerably less steel to cut and generally concrete sections will be thinner than comparable reinforced concrete structures.

Only in the case of transfer slabs or beams, which have been progressively stressed, must extra precautions be taken to avoid upward bursting of concrete as the self weight of the structure above is progressively removed.



Member Companies

Corporate Members

Australian Prestressing Services Pty Ltd (founding member)
Austress Freyssinet Pty Ltd (founding member)
Structural Systems Group (founding member)
VSL Australia Pty Ltd (founding member)



Associate Members

CMC (Australia) Pty Ltd
OneSteel Wire
Taylor Thomson Whitting



TaylorThomsonWhitting

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POST-TENSIONING INSTITUTE
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“ensuring excellence and accreditation for the post-tensioning industry”

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