ptNEWS

Newsletter 1 - 2013

POST-TENSIONING INSTITUTE OF AUSTRALIA LIMITED

Presidents Report

After a significant amount of work, the Post-Tensioning Institute of Australia is proud to announce the release of its on line Post-Tensioning training program. This program has been introduced to comply with the new workplace agreement requirements for those working in NSW within the Post-Tensioning Industry. Coincidently, the new Certificate III in Post-Tensioning qualification (CPC31712) has just been published by CPSISC.

The PTIA was initially set up in order to continually improve and inform the industry, and it is the directors' belief that this training program will significantly improve both the training and processes that occur within our industry.

In addition to the above online training program, the PTIA has held one seminar in Brisbane and is currently holding a second seminar in Sydney, directed at informing the local engineers of new directions and achievements of the industry. The seminar will also be presented in Melbourne in June.

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I would like to take this opportunity to thank the directors of the PTIA who have contributed significant hours of their time in order to make the online training program a reality.

The PTIA Board has also approved the development of PTIA Grouting Procedures and Guidelines for the industry. Once completed, these procedures will form the basis of Guidance Notes and information seminars.

Andrew Castle
PRESIDENT

New Certificate III in Post-Tensioning Qualification Published

PTIA is delighted to announce that this new qualification in post-tensioning has recently been approved and published by the Construction and Property Services Industry Skills Council (CPSISC).

This development occurs just as PTIA launches it's on-line training scheme (see article on page 3).

Provided through an agreement with ACI Global, an ISO 29990 International Learning Service Provider, the Mono Strand module (CPCCSF3002A) is now available.

On satisfactory completion, students will receive a Certificate of Competence meeting National Training Qualification and ISO29990 requirements, and PTIA card for carrying on-site. This certificate will also meet the requirements in Enterprise Bargaining Agreements in NSW.

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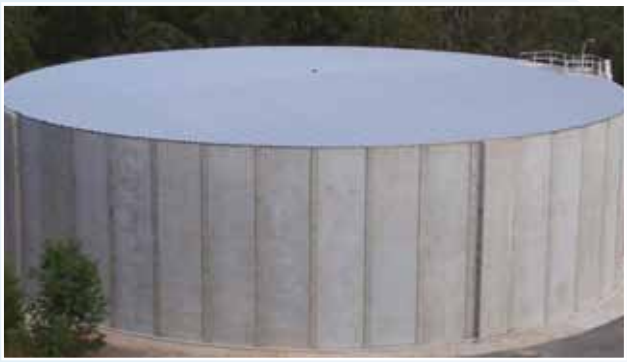
Prestressed Concrete Tanks

Since the design and construction of over 50 reservoirs by John Monash between the years of 1903 and 1915 in Australia, the construction of reinforced reservoirs remained unchanged for many years, with most tanks leaking but eventually self-healing.



"Post-tensioning the floor slab allows for the construction of a single pour slab, eliminating the need for construction of expansion joint..."

The introduction of prestressing in the 1960's saw tank walls being wire wrapped, which offered some residual support to the reinforced wall construction. Even the introduction of steel reservoirs has not provided a better option, with a high cost of construction, the need for special protective coating and high maintenance requirements.

It wasn't until the introduction of post-tensioning into reservoir construction that these inherent problems with reinforced and steel construction were overcome.

The primary objectives in the construction of any reservoir are that it is water tight and that its long term serviceability requirements are met. The Australian Standards such as the Concrete Structure for Retaining Liquids (AS3735) and Concrete Structures (AS3600) allow for a design lifespan between 40 to 60 years. However most structures are now required to achieve a minimum design life of 100 years. The design of a concrete structure, its development and construction process need particular attention to:

- Early Age Thermal and Early / Long term shrinkage control measures
- Long term dry shrinkage and creep
- Crack control

The walls can either be cast insitu or precast, stressing both vertically and/or horizontally to offer a water tight seal through the application of stressing forces in conjunction with the concrete's natural durability, becoming stronger when exposed to water over time. The durability of the prestressing strands is guaranteed by implementing best practice and performance grouting procedures which involves the use of admixtures in the grout to be successful in waterproofing.

Post-tensioning the floor slab allows for the construction of a single pour slab, eliminating the need for construction of expansion joints, with expensive water stops. Precast panels are usually fabricated to meet radius requirements for the project, lifted and vertically positioned into a floor slab rebate.

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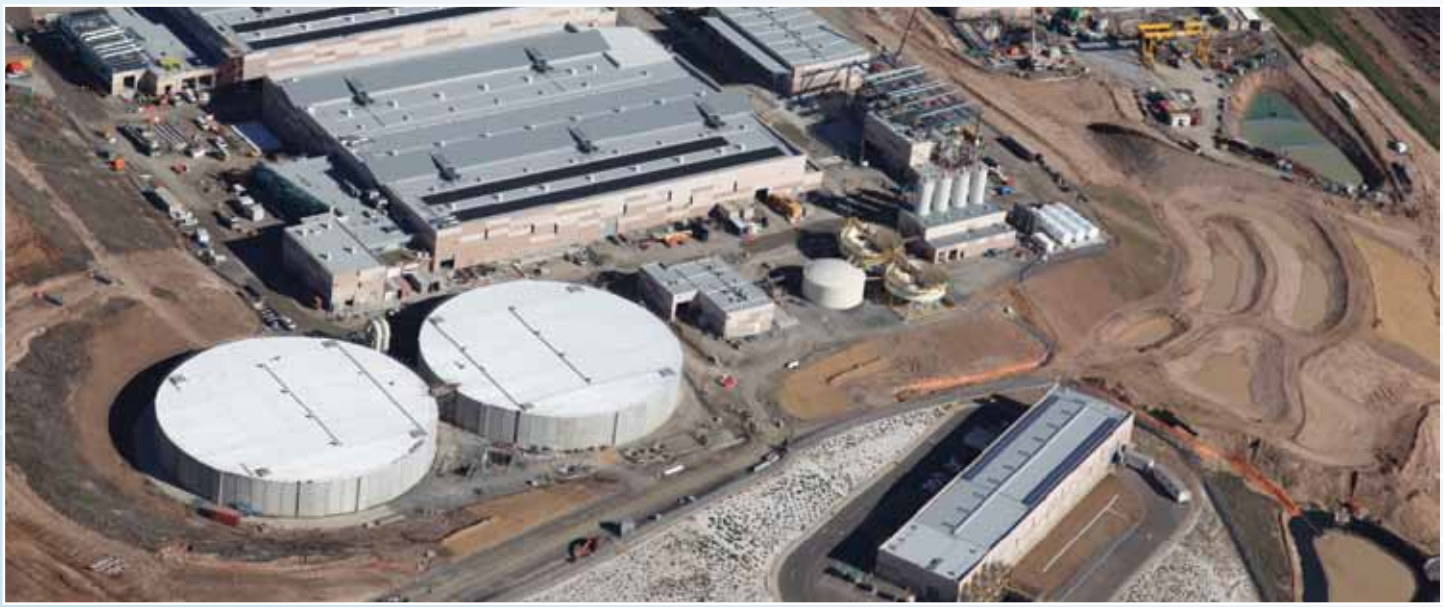
Adelaide Desalination Project: *Prestressed Concrete Reservoirs – 2 x 25 ML Reservoirs*



PTIA Web based training Scheme

PTIA has been delivering training in post-tensioning for operatives since 2008.

Since then, the PTIA training modules have been extended from the initial Mono Strand module to include Multi-Strand and Stress Bar modules. In 2010, the PTIA training material was presented as part of the Certificate III in Steelfixing qualification. It is now part of the recently published qualification, Certificate III in Post-Tensioning. Under this qualification, the three PTIA modules will be:

- CPCCSF3002A Carry out Mono Strand Post-tensioning
- CPCCSF3003A Carry out Multi Strand Post-tensioning
- CPCCSF3004A Carry out Stress Bar Post-tensioning

Web based scheme

Through ACI Global, an ISO 29990 International Learning Service Provider, PTIA has now developed its training scheme to be available through ACI Global's "e-learning centre".

The scheme has been developed so that knowledge learning and assessment can be completed through the e-learning centre, and skills development and assessment can be undertaken on the trainee's work site.

On successful completion of the training and assessment, the trainee will receive a Certificate of Competence meeting the requirements of the National Training Qualification and ISO29990, as well as a wallet sized PTIA card verifying completion. Assessments are conducted by PTIA assessors. For PTIA Corporate Member companies, each will be offered the Assessor training and accreditation so that they can conduct assessments for their own staff. Non PTIA member companies will need to engage an accredited PTIA assessor to conduct assessments for their staff.

Presently the scheme only offers the Mono Strand module. Multi Strand and Stress Bar modules will be added progressively.

To access this training, and to receive the training and assessment materials, go to the ACI Global PTIA e-learning page : www.aciglobal.com.au

Pre-Requisite: CPCCOHS2001A-Apply OHS requirements, policies and procedures in the construction industry.

Fees for the Mono Strand module are:

- PTIA Corporate Members : $330.00 including GST
- Non PTIA Members : $2,156.00 including GST (includes assessor fee in Brisbane, Sydney, Melbourne and ACT)

To become a Corporate Member (for post-tensioning contracting companies) of PTIA visit the PTIA website for details and application form.

How It Works (Mono Strand module)

Task 1:

Conduct practical learning tasks in accordance with the PTIA Mono-strand Training Manual.

The student will undertake on the job training in Mono-strand Post-tensioning under the instruction and supervision of an experienced employee from their company, in accordance with the procedures set out in the PTIA Mono-strand Training Manual. The student will be supplied with the PTIA Mono-strand Training Manual and a Student Learning Log, which their supervisor will fill in when performance criteria are met. The Student learning Log, upon completion, shall be scanned and uploaded to the learning platform.

Task 2:

Demonstrate the application of knowledge by participating in an assessment under visual observation (video) on an existing Post-tensioning project.

The student will be assessed by an ACI Global endorsed Assessor. The assessment material and video observations will be uploaded to the learning platform.

Task 3:

Undertake a course assessment questionnaire, covering all elements within the unit of competency.

Once the previous two tasks are complete, the student will undertake a questionnaire on the learning platform. This will be immediately assessed. The student must achieve a 90% pass mark, otherwise they will be required to repeat the assessment after a mandatory wait period.

Completion:

On successful completion, the student will receive a Certificate of Competence and a credit card sized PTIA card, suitable for carrying on site.

Mono Strand Module Content

Fundamental concept of Prestressed Concrete
General Safety on Site
Prestressing Systems
Installation: Fixing anchorages
Laying Duct
Setting up Coil of Strand
Pushing Strand into Duct (manually and with Strand Pusher)
Forming Dead Ends
Tendon Profiling
Fixing Dead Ends, Grout Vents, & Taping Ducts
Prepour Inspection
Concrete Pour
Stressing: Initial Stressing
Final Stressing
De-tensioning
Cut Strand & Seal Recesses
Grouting

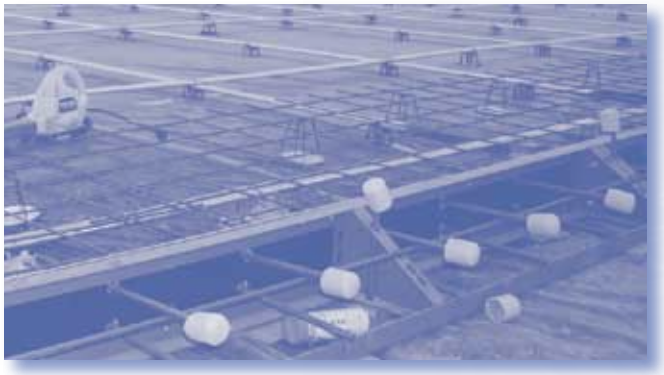
PTIA Training goes on line

Seminars 2013

PTIA plans a new series of seminars to be conducted in conjunction with the Concrete Institute of Australia and Engineers Australia in 2013. Details will be shown on the PTIA and Concrete Institute web sites. Courses planned are:

LOCATION	EVENT	DATES
Sydney	Seminar with Concrete Institute	February 20
Melbourne	Seminar with Concrete Institute	June 26
Brisbane	Seminar with Concrete Institute	November 19

For seminar details, and to register, visit the Concrete Institute of Australia website: www.concreteinstitute.com.au.
PTIA Members receive discounts on the registration fee.



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After the panels are erected and positioned in place, the entire wall section is stressed in two phases:

First the walls are stressed to 50% capacity, which allows the walls to freely slide within the footing rebate (beam). After the walls are positioned, the internal part of the slab rebate is grouted to seal the gap between the panels and the slab.

Finally, the walls are stressed to 100% capacity once the waterproofing and grouting of the interior is completed. This causes the internal grouting to be in compression to prevent cracking and therefore leakage.

Afterwards the external sections between the wall and the concrete slab are grouted to close out the wall/floor connection to form a pinned connection.

As a specialised contractor, APS has been involved in the design and construction of a number of reservoirs, ranging in different sizes from 2ML to 40ML and beyond.

The design and construction system developed by APS in order to meet the strictest requirements provides a solution far superior than that of any other. As a specialised contractor in the field of post-tensioning, APS makes efficient use of both insitu and precast post-tensioning elements in the construction of reservoirs.

Member Companies

Corporate Members

Australian Post-Tensioning Pty Ltd
Australian Prestressing Services Pty Ltd (founding member)
Structural Systems Pty Ltd (founding member)

Associate Members – suppliers

Ancon Building Products
OneSteel Wire Pty Ltd
Refobar Australia
Severs Technical Systems Pty Ltd

Associate Members – consulting engineers

ABC Consultants
Arup
Bornhorst + Ward Pty Ltd
Costin Roe Consulting Pty Ltd
Hyder Consulting Pty Ltd
McVeigh Consultants Pty Ltd
Parsons Brinkerhoff
SCP Consulting Pty Ltd
Taylor Thomson Whitting

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