

## PRESIDENT'S REPORT

We have ended another financial year and, like most organisations, PTIA is completing reviews of its finances to date and budget projections for the coming year.

Heading into the 2012/2013 year, there are two things that are very obvious. Primarily, to sustain the Institute we do need new members and more support from existing members. Secondly, we are aware that PTIA must offer more for those who are members and we are attempting to put in place programs which are attractive and useful. The Board does need assistance with this, and we ask all to seek out others who might join PTIA and support our efforts in the industry as, to have strength and impact, we do need to be a significant group.

PTIA is currently focussing on two significant issues – enhancement of the workforce training scheme, and promotion of the sustainability benefits from PT construction – both of which require significant resources. We welcome interested parties to offer opinions and comments to assist in moving these agenda forward.

From the outset, PTIA has placed considerable importance on the need for a properly trained workforce to ensure high quality and high safety standards. The initial PTIA Skills Training Scheme has progressed to now be incorporated into the Certificate III in Steelfixing and will soon be part of a new Certificate III in Post-tensioning qualification. PTIA is now developing its training onto a web based platform which will offer all organisations and PT workers ease in accessing the training and assessment materials, as well as enabling training to be undertaken at times suitable to the individual and their employer. It is also noteworthy that recent discussions in NSW with the Unions in relation to new Enterprise Agreements have highlighted the importance of proper training of post-tensioning operators.

PTIA is also placing much importance on the need for greater recognition of the sustainability benefits of PT construction.

As reported in some detail on page 3, with the professional inputs from Engineered Material Solutions, PTIA is preparing information and documentation to support approaches to the Green Building Council of Australia with a view to incorporating relevant criteria to recognise PT as a sustainable building solution.

“From the outset, PTIA has placed considerable importance on the need for a properly trained workforce to ensure high quality and high safety standards.”

We are also in the process of converting the distribution of ptNews from ordinary post to email distribution. To subscribe to ptNews, please email to [info@ptia.org.au](mailto:info@ptia.org.au) with the heading “Subscribe to ptNews”.

**Michael O'Neill**  
President

### PTIA WORKFORCE TRAINING ONLINE

PTIA will soon have its workforce training modules available through an online web based platform. This facility will make PT training more accessible for organisations and their workforce. The first modules to go online will be the Monostrand and Multistrand modules. It is PTIA's intention to eventually include all of the modules for the pending Certificate III in Post-tensioning qualification.

See page 4 in this Newsletter for more details.

### CONTENTS

Presidents Report	1
Project Report: Halo Apartments, Melbourne	2
Sustainable Construction with Post-tensioning	3
PT Training Online	4
PTIA Member Companies	4

### *Halo Apartments*

Location: *161 - 163 Fitzroy Street, St Kilda*

Client: *Little Projects*

Builder: *Crema Constructions*

Post-tensioning contractor: *Australian Prestressing Services (VIC)*

Concrete frame: *Carpark Basement 1 & 2*  
*Ground to Level 9 Apartments*



Directly opposite Albert Park, another stunning apartment emerges along this much sought after boulevard in St Kilda, Melbourne, Victoria.

Australian Prestressing Services (Vic) Pty Ltd was commissioned by Crema Constructions to convert the current engineering scheme of 20,000m<sup>2</sup> build up to a full flat plate design using APS post-tensioned flat slab system to expedite the delivery of the structural package. The delivery process was made easier by the integrated builder, Crema Construction who supplied their own formwork, precast system and concrete in house.

---

***The three blocks are serviced internally by two well manicured courtyards on Level 1 which also act as a transfer plate for the project.***

---

The three blocks are serviced internally by two well manicured courtyards on Level 1 which also act as a transfer plate for the project. The redesign of the flat plate scheme from deep beams and shallow slabs using the APS flat slab system added significant ceiling space to the Ground Floor Retail Tenancy, simplifying the formwork and overall construction cycle time. The transfer plate was also designed to support the wet concrete above hence reducing significant back propping below once the slab was fully stressed.

Given its close proximity to the sea, significant measures was undertaken in the design phase for the high hydrostatic pressure due to the existing water table level in the basement where the slab design used a combination of flat and reverse tendon profiles for the two

*Top, centre: Project front perspective view (pic by Ascui Edward)*  
*Above: APS Post Tensioned Raft Slab*

opposite final loading conditions. The project is expected to be completed by early 2013.

Due to a flawless delivery of the project, Westfield is an extremely satisfied client.

**For some time, PTIA has been concerned that the benefits of sustainable construction through post-tensioning have not been recognised by rating systems, particularly the GreenStar rating system. Rather than lament this situation, PTIA has embarked on a project to demonstrate the advantages of PT construction for sustainability, and to endeavour to provide a methodology for recognition of such.**

PTIA has engaged the services of Engineered Material Solutions (EMS) as consultants in this project. To date, a report identifying the sustainable advantages of PT construction has been delivered. The present stage involves collation of relevant data to support a methodology for recognising such advantages. PTIA then proposes to enter into discussions with GBCA with a view to the adoption of a recognition of the advantages of PT construction.

### **What does post-tensioned concrete have to offer in terms of sustainable construction?**

Our last Newsletter included a summary of a paper by Jenkins, Baweja & Portella on Optimising Building Design for Sustainability using High Performance Concrete. In essence, this paper demonstrates that sustainable construction is not simply a matter of using supplementary cementitious materials (SCMs) and recovered aggregates (e.g. fly ash, slag or amorphous silica) in concrete, but that the overall efficiency of the design can significantly reduce greenhouse gas emissions. The paper, presented at the Concrete Institute of Australia's Biennial Conference in Perth in 2011, clearly demonstrates that proper design and using optimised concrete mixes can result in structures with lower embodied energy than having structures made with concretes where simple cement reduction strategies are followed.

The PTIA/EMS Sustainability Project will aim to identify how post-tensioned construction can significantly reduce greenhouse gas emissions through design and materials in the following ways –

- lower overall embodied energy in buildings and structures
- appropriate inclusions of SCMs in the concrete
- a reduction in steel quantities, and recognition of this through rating systems
- decreased construction cycle times with consequent reductions in energy requirements, waste and materials
- a reduction in waste materials in the construction process

- a significant reduction in the quantity of concrete required for a building or structure (dematerialisation) and recognition that reduction in cement content alone does not necessarily result in greater sustainability.

It is the aim of PTIA to focus on three aspects of the GreenStar rating system to demonstrate the advantages of post-tensioned construction, namely –

- the concrete materials credit
- the dematerialisation credit, and
- an innovation credit.

### **Related initiatives**

Concurrently with this project, PTIA is engaged with Cement Concrete & Aggregates Australia (CCAA) through its Technical Committee in investigations related to the PT Concrete Specification and meeting GreenStar criteria. This joint working group has been focussed on the PT Concrete Strength Specification in its early deliberations. It is expected that an early output from this working group will be a new specification for concrete for post-tensioned construction which better meets GreenStar criteria. Fundamental to this development are considerations related to minimum strengths for initial stress, what factors influence initial stress requirements, how to determine the actual concrete strength at an early age, and the role and extent of the use of supplementary cementitious materials on these properties. Considerable effort is being directed towards the value of Strength Maturity Monitoring Techniques to accurately predict early age strengths relevant to initial stressing requirements.

### **Industry Input**

PTIA welcomes comments and contributions from its members and the wider industry on these matters. PTIA is aware of comments that PT design/construction does not meet current GreenStar requirements, and is intent on addressing such shortfalls. Builders, designers, and PT contractors are invited to offer their comments to PTIA in relation to construction realities and achieving sustainable developments through post-tensioned structures.

**Any comments and suggestions can be sent to PTIA by email at [info@ptia.org.au](mailto:info@ptia.org.au) .**

## PTIA WORKFORCE TRAINING ONLINE

PTIA has progressed its Workforce Training facility to be available through a web based learning platform. This development provides for all PT workers to undertake essential training at a time of their choice, and allows for on-site training to be undertaken at times suitable for the employer.

This web based training facility will be accessible through the PTIA's web site – [www.ptia.org.au](http://www.ptia.org.au) – and is planned to be operational by the end of this year. It offers considerable advantages to PT contractors and their employees with reduced costs, greater flexibility for when training can be conducted, and certification of successfully completed training.

### The facility in overview

To undertake the training, the candidate simply registers through the web site which provides them with a unique access code. The training modules can be studied at leisure, and completion of the knowledge content is by on-line questionnaire and assessment.

The on-site training can be undertaken by employer trainers and assessors, removing the need for a PTIA trainer to provide this training. Employer trainers/ assessors can become accredited by completing the train the trainer course available through the web site at no cost to approved organisations.

Verification of on-site skills can be as simple as uploading a video (from mobile phone camera) to the web site, recording the trainee's demonstration of their ability to apply the skills learned. PTIA can provide an assessor for this purpose, if required, although this will incur additional cost.

The facility offers a complete training log book, whereby all elements of on-line training and on-site training can be recorded for review by PTIA assessors.

### Certificate III in Post-tensioning

It is expected that a Certificate III in Post-tensioning will be finalised by the end of 2012. PTIA intends to provide all relevant units for this qualification through its web based learning platform.

Trainees may then choose to undertake selected units within this qualification, or to undertake the complete qualification.

On successful completion of any unit, or the complete Certificate III qualification, a statement of completion will be issued. PTIA also intends to provide a card recording the units or qualification completed (these cards are convenient to carry on site for display as required).

**“This web based training facility will be accessible through the PTIA's web site – [www.ptia.org.au](http://www.ptia.org.au) – and is planned to be operational by the end of this year”**

## 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

Ajax Foundry Pty Ltd  
Ancon Building Products  
Haggie Reid Pty Ltd  
Holcim (Australia) Pty Ltd  
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



## “ENSURING EXCELLENCE AND ACCREDITATION FOR THE POST-TENSIONING INDUSTRY”

POST-TENSIONING INSTITUTE OF AUSTRALIA LIMITED ABN 86 121 218 228 PO Box 861, Five Dock NSW 2046

Telephone: 02 8765 6199 Facsimile: 02 9743 4013 Email: [info@ptia.org.au](mailto:info@ptia.org.au) Web: [www.ptia.org.au](http://www.ptia.org.au)