



**14<sup>th</sup> International Brick and Block Masonry Conference**  
Sydney, Australia  
17-20 February 2008  
(this event incorporates the 8<sup>th</sup> Australasian Masonry Conference)

Hosted by **The University of Newcastle, Concrete Masonry Association of Australia and Think Brick Australia**

**CONFERENCE PROGRAM**

Sunday, 17 February, 2008	
5:00-7:00	Registration Open (Hotel Lobby)
6:00-9:00	Welcome Reception (Bellevue Terrace) (partners welcome)

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Monday, 18 February, 2008

8:00-Noon	Registration Open (Ballroom Foyer)		
8:30–9:00	<p>Conference Opening (Pavilion Ballroom 1):  Welcome: Mark Masia and Yuri Totoev  Opening Address: Em. Prof Adrian Page <i>Masonry at the Crossroads</i></p>		
9:00-10:30	<p>Masonry and Sustainability (Pavilion Ballroom 1):  <b>Linda Ginger</b> (Chair)  <b>Gregg Borchelt and Christine Subasic</b> <i>Standards for sustainable buildings in the United States of America</i>  <b>Carl-Alexander Graubner, C. Hock and C. Schneider</b> <i>Rating the sustainability of buildings – European approaches</i>  <b>Cathy Inglis</b> <i>Energy efficiency regulations and rating tools for Australian buildings – an overview</i></p>		
10:30–11:00	Coffee break (Bellevue Terrace)		
11:00–12:40	<p><b>Session 1A: Compressive/Vertical Loading</b>  <b>Robert Drysdale</b> (Chair)  <b>Capuzzo Neto, Correa and Ramalho</b> <i>Distribution of vertical loads between interconnected masonry walls with and without a top slab</i>  <b>Dhanasekar, Ferozkhan, Dhanasekar and Holt</b> <i>Behaviour of dry stack concrete masonry blocks under eccentric compression</i>  <b>Mojsilović and Raess</b> <i>A correlation between masonry compressive strength and unit splitting strength</i>  <b>Bright and Ahmed</b> <i>Concentrated loads on Aircrete thin joint blockwork</i></p>	<p><b>Session 1B: Thermal Performance</b>  <b>Josep Adell</b> (Chair)  <b>Upadhyay</b> <i>Thermal mass requirement for building envelope in different climatic conditions</i>  <b>Alashaary, Moghtaderi, Sugo and Page</b> <i>Application of neuro-fuzzy model to evaluate the thermal performance of typical Australian residential masonry buildings</i>  <b>Gregory, Moghtaderi, Sugo and Page</b> <i>A thermal performance study of common Australian residential construction systems in hypothetical modules</i>  <b>Sugo, Hands and Page</b> <i>Thermal performance of Australian masonry housing – heating and cooling demands under Spring conditions</i>  <b>Buxbaum, Juhart, Seiler and Pankratz</b> <i>Study on the hygrothermal performance of heritage-protected external masonry walls with inside insulation</i></p>	<p><b>Session 1C: ESECMASE</b>  <b>Udo Meyer</b> (Chair)  <b>Meyer</b> <i>Optimization of vertically perforated clay units for Central European seismic areas</i>  <b>Zilch, Schermer, Grabowski and Scheufler</b> <i>Boundary conditions of shear walls in multi-storey masonry structures under horizontal loading</i>  <b>Fehling and Schermer</b> <i>ESECMASE - Shear test method for masonry walls with realistic boundary conditions</i>  <b>Fehling and Stuerz</b> <i>Shear tests on clay unit masonry walls under static-cyclic horizontal loading</i>  <b>Magenes, Morandi and Penna</b> <i>In-plane cyclic tests of calcium silicate masonry walls</i></p>
12:40-2:00	Lunch (Epic Brasserie)		
2:00-3:40	<p><b>Session 2A: Compressive/Vertical Loading</b>  <b>Manicka Dhanasekar</b> (Chair)  <b>Graubohm, Zachert and Brameshuber</b> <i>Theoretical and practical investigations on the determination of calcium silicate and autoclaved</i></p>	<p><b>Session 2B: Arches/Historical Masonry</b>  <b>John Nichols</b> (Chair)  <b>Mojsilović, Schneider, Villiger and Marti</b> <i>Load test on unreinforced masonry shell</i>  <b>Harvey</b> <i>Load distribution and stability in masonry</i></p>	<p><b>Session 2C: ESECMASE/In-plane Loading</b>  <b>Rod Johnston</b> (Chair)  <b>Kranzler and Graubner</b> <i>Integral model for the in-plane lateral load capacity of URM (shear) bearing walls and calibration with test results</i></p>

	<p><i>aerated concrete masonry compressive strength</i>  <b>Hendrickx, Schueremans, Verstryngge, Van Balen and Van Gemert</b> <i>Effect of mortar type and workmanship on the behaviour of masonry under uniaxial compression</i>  <b>Carvalho and Roman</b> <i>Arch effect – a literature review</i>  <b>Carvalho and Roman</b> <i>The contribution of flanges to walls under the action of the arching effect</i>  <b>Graubner and Glowienka</b> <i>Stochastic modelling of modern masonry</i></p>	<p><i>bridges, vaults and domes</i>  <b>Garrity</b> <i>The rehabilitation of the piers of a 125 year old clay brick railway viaduct</i>  <b>Basilio, Oliveira, Lourenço and Ramos</b> <i>Numerical modelling of arched structures</i>  <b>Carpinteri, Lacidogna, Manuello and Binda</b> <i>Monitoring the structures of the ancient Temple of Athena incorporated into the Cathedral of Syracuse</i></p>	<p><b>Meyer and Caballero González ESECMaSE</b> <i>Shaking table tests at the National Technical University in Athens</i>  <b>Anthoine and Molina</b> <i>Pseudo-dynamic testing of full scale masonry structures: preparatory work</i>  <b>Penna, Magenes, Calvi and Costa</b> <i>Seismic performance of AAC infill and bearing walls with different reinforcement solutions</i>  <b>Zilch, Scheufler and Schermer</b> <i>Behaviour of reinforced masonry walls made of hollow clay units with concrete infill under combined loadings</i></p>
3:40-4:10	Coffee break (Bellevue Terrace)		
4:10-5:30	<p><b>Session 3A: FRP Strengthening</b>  <b>Gregg Borchelt</b> (Chair)  <b>Petersen, Masia and Seracino</b> <i>Experimental verification of finite element model to predict the shear behaviour of NSM FRP strengthened masonry walls</i>  <b>Parsekian, Tilleman and Shrive</b> <i>An investigation of out-of-plane loaded sprayed GFRP strengthened masonry walls</i>  <b>Willis, Wu, Griffith and Seracino</b> <i>Horizontal bending of FRP retrofitted masonry small wall specimens</i>  <b>Dhanasekar, Holt, Ferozkhan and Dhanasekar</b> <i>Out-of-plane behaviour of fibre reinforced cement composite (FRCC) rendered dry stack concrete masonry walls</i></p>	<p><b>Session 3B: Masonry Architecture</b>  <b>Adrian Page</b> (Chair)  <b>McMurchy</b> <i>Decorative brickwork – past and present</i>  <b>Bingel and Bown</b> <i>Refurbishment of masonry buildings – a sustainable option?</i>  <b>Markov</b> <i>Study of volume location in steel frame buildings with masonry infill walls</i>  <b>Russell and Ingham</b> <i>Trends in the architectural characterisation of unreinforced masonry in New Zealand</i></p>	<p><b>Session 3C: Masonry Materials</b>  <b>Cathy Inglis</b> (Chair)  <b>Haigh, Norton, Cook and Ingham</b> <i>Influence of waste latex and acrylic paint on concrete masonry blockfill rheology</i>  <b>Moroz and Lissel</b> <i>Life cycle assessment of traditional versus indigenous materials</i>  <b>García Santos, Conci Rinaudo and Adell Argilés</b> <i>Ceramics brick colour modifications produced by the superficial protections</i>  <b>Heffler, Stewart, Masia and Correa</b> <i>Spatial correlation of flexural bond strength for masonry walls: an experimental and statistical study</i></p>
6:30 start	Mortar Mixer and BBQ (Hotel Rooftop) (partners welcome)		

Tuesday, 19 February, 2008

8:00-Noon	Registration Open (Ballroom Foyer)			
8:30-10:00	<p>State of the Art Reports (Pavilion Ballroom 1):  <b>Mark Masia</b> (Chair)  <b>Paulo Lourenço</b> <i>Structural Masonry Analysis: Recent Developments and Prospects</i>  <b>Michael Griffith</b> <i>Seismic Design of Masonry Buildings in Australia</i>  <b>Jason Ingham</b> <i>The Influence of Earthquakes on New Zealand Masonry Construction Practice</i></p>			
10:00–10:30	Coffee break (Bellevue Terrace)			
10:30–12:30	<p><b>Session 4A: Seismic Performance</b>  <b>Vlatko Bosiljkov</b> (Chair)  <b>Nichols</b> <i>The implications of the May 27<sup>th</sup> 2006 Java earthquake for masonry design and construction</i>  <b>Totoev, Sing-Sang and Page</b> <i>Empirical redistribution procedure to improve accuracy of linear elastic analysis of shear walls in load-bearing masonry</i>  <b>Johnston</b> <i>Design of masonry structures for earthquake in Australia</i>  <b>Heath, Gad and Wilson</b> <i>Shaking table test of full-scale brick veneer house</i>  <b>Quiun, San Bartolomé and Torrealva</b> <i>Masonry influence in seismic performance of buildings – case study in Peru</i>  <b>San Bartolomé, Quiun, Casabonne and Torrealva</b> <i>New Peruvian masonry design code</i></p>	<p><b>Session 4B: Masonry Materials</b>  <b>Heber Sugo</b> (Chair)  <b>Lubelli and van Hees</b> <i>Study of the possible application of sodium ferrocyanide for the prevention of sodium chloride damage in building materials</i>  <b>Zhou, Walker and D’Ayala</b> <i>Flexural bond strength development of brickwork using natural hydraulic lime (NHL) mortar</i>  <b>Schloeglmann</b> <i>Long-term behaviour of PUR-glued clay block masonry</i>  <b>Gu, Chen, Li and Gao</b> <i>Experimental study on basic mechanical properties of concrete perforated brick masonry</i>  <b>Vermeltoort</b> <i>Mechanical properties and application features of CASIELS</i>  <b>Bokan-Bosiljkov, Bosiljkov and Žarnić</b> <i>Water absorption of lime-based facades</i></p>	<p><b>Session 4C: Reinforced Masonry</b>  <b>David McLean</b> (Chair)  <b>Bagheri and Göran Hellers</b> <i>Prestressed AAC masonry in prefabrication of a new building system (BCE)</i>  <b>Biggs and Forsberg</b> <i>A mortarless prestressed masonry house: case study</i>  <b>Sperbeck and Budelmann</b> <i>Experimental and numerical investigation of prestressed masonry structures under earthquake loading – influences on simulation results</i>  <b>Shrive and Page</b> <i>In-plane cyclic loading of partially grouted masonry – a review and assessment of research needs</i>  <b>Haider and Dhanasekar</b> <i>Analysis of wide spaced reinforced concrete masonry shear walls using explicit finite element method</i>  <b>Roberts</b> <i>The development of design methods for reinforced and unreinforced masonry basement walls</i></p>	
12:30-2:00	Lunch (Epic Brasserie)			
2:00-3:40	<p><b>Session 5A: Out-of-plane Loading</b>  <b>Stephen Lawrence</b> (Chair)  <b>Maluf, Parsekian and Shrive</b> <i>An investigation of out-of-plane loaded unreinforced masonry walls design criteria</i>  <b>Jäger, Vassilev, Hoffmann and</b></p>	<p><b>Session 5B: Seismic Performance</b>  <b>Jason Ingham</b> (Chair)  <b>Butenweg and Gellert</b> <i>Displacement based design of masonry structures under earthquake loading</i>  <b>Vaculik, Lumantarna, Griffith, Lam and Wilson</b> <i>Out-of-plane</i></p>	<p><b>Session 5C: Compressive/Vertical Loading</b>  <b>Barry Haseltine</b> (Chair)  <b>Kubica, Seweryn and Wawrzynek</b> <i>Behaviour and characteristic of clay brick masonry wallettes subjected to compressive cyclic loads</i>  <b>Drobiec and Kubica</b> <i>Masonry walls and</i></p>	<p><b>Session 5D: Materials Testing</b>  <b>Ad Vermeltoort</b> (Chair)  <b>Casali and Prudêncio</b> <i>A new test method for the evaluation of the workability of concrete block masonry bedding mortars</i>  <b>Seim, Pfeiffer, Hempel and</b></p>

	<p><b>Schöps</b> <i>Unreinforced masonry basement walls – a comparison of theoretical design approaches and numerical simulations</i></p> <p><b>Schmidt, Hannawald and Brameshuber</b> <i>Theoretical and practical research on the flexural strength of masonry</i></p> <p><b>Shi, D’Ayala and Jain</b> <i>Analysis of out-of-plane damage behaviour of unreinforced masonry walls</i></p> <p><b>Guadagnuolo and Faella</b> <i>The friction in the out-of-plane failure mechanisms of masonry walls</i></p>	<p><i>seismic response of unreinforced masonry walls: an overview of research in Australia</i></p> <p><b>Yang, Peng and Liang</b> <i>Finite element analysis of the seismic behaviour of concrete perforated brick masonry</i></p> <p><b>Tassios, Vintzileou and Patta</b> <i>Seismic evaluation of existing masonry buildings: scoring system and calibration</i></p> <p><b>Bosiljkov, Bokan-Bosiljkov and Žarnić</b> <i>Optimization of contemporary blockwork masonry for seismic regions – step by step approach</i></p>	<p><i>columns with bed joint reinforcement subjected to vertical loads – proposition of design method</i></p> <p><b>Ye, Sun, Liu and Zhang</b> <i>Experimental study on compression behaviour of composite hollow concrete block masonry for load-bearing and energy conservation</i></p> <p><b>Freitas, Ramalho, Corrêa and Taliercio</b> <i>Concrete block prisms under compression: numerical and experimental analysis of load failure and displacements</i></p> <p><b>Mata, La Rovere and Prudêncio</b> <i>Influence of mortar bedding on the mechanical behaviour of hollow concrete masonry prisms under axial compression</i></p>	<p><b>Orschulok</b> <i>A new method to investigate the surface tensile strength of concrete and masonry structures</i></p> <p><b>Khalaf</b> <i>Three-point bending test to determine masonry shear bond strength</i></p> <p><b>Amde and Colville</b> <i>A new test method for flexural bond strength of masonry prisms</i></p> <p><b>Xiao and Shrive</b> <i>Mixed-mode fracture testing of the mortar/unit interface</i></p>
3:40-4:10	Coffee break (Bellevue Terrace)			
4:10-5:30	<p><b>Session 6A: In-plane Loading</b> <b>Nebojsa Mojsilović</b> (Chair) <b>da Porto, Guidi, Garbin and Modena</b> <i>Modelling of in-plane loaded clay unit masonry walls</i></p> <p><b>Calderini, Cattari and Lagomarsino</b> <i>Overall strength criteria of masonry shear piers: discussion and validation of literature models</i></p> <p><b>Sassu</b> <i>A procedure for testing masonry structures: the pile model and the opposite panel shear compression tests</i></p> <p><b>Lourenço, Vasconcelos, Gouveia, Haach and Freitas</b> <i>Validation of masonry systems for in-plane lateral loading using truss reinforcement</i></p>	<p><b>Session 6B: Masonry Repair/Retrofit</b> <b>Wolfram Jäger</b> (Chair) <b>Gigla and Schlesinger</b> <i>Investigation into the suitability of industrial fixing systems for the repair of historic masonry</i></p> <p><b>Molnár, Jönsson and Gustavsson</b> <i>Rehabilitation of masonry facades damaged by reinforcement corrosion</i></p> <p><b>San Bartolomé, Castro, Vargas and Quiun</b> <i>Repair of reinforced masonry walls with previous shear failure</i></p> <p><b>Soric, Galic and Kisicek</b> <i>Strengthening of masonry walls with glass fibre straps</i></p>	<p><b>Session 6C: In-situ Testing</b> <b>Luigia Binda</b> (Chair) <b>Ramos, Lourenço, De Roeck and Campos-Costa</b> <i>Global damage identification based on vibration signatures applied to masonry structures</i></p> <p><b>Verstrynge, Ignoul, Schueremans, Van Gemert and Wevers</b> <i>Damage accumulation in masonry under persistent loading evaluated by acoustic emission technique</i></p> <p><b>Keersmaekers, Posen, Knapen, Leus and Van Gemert</b> <i>Enhancement of geo-electrical techniques for NDT of masonry</i></p> <p><b>Palieraki, Vintzileou and Miltiadou-Fezans</b> <i>The use of radar technique and boroscopy in investigating historic masonry: application of the techniques in Byzantine monuments in Greece</i></p>	<p><b>Session 6D: Domestic Construction</b> <b>Alan Pearson</b> (Chair) <b>Lawrence and Page</b> <i>New Australian standards for masonry in small structures</i></p> <p><b>Noble Industry</b> <i>addresses skills shortage (abstract only)</i></p> <p><b>Freire and Parsekian</b> <i>Analysis of Brazilian low rise structural masonry buildings</i></p>
Buses depart hotel 6:20 pm	Sydney Harbour Dinner Cruise (7-11 pm) /Announcement of Host Venue for 15 <sup>th</sup> IB <sup>2</sup> MaC			

Wednesday, 20 February, 2008

8:00-Noon	Registration Open (Ballroom Foyer)		
8:30–10:10	<p><b>Session 7A: FRP Strengthening</b> <b>Shelley Lissel</b> (Chair) <b>Pfeiffer and Seim</b> <i>Local post-strengthening of in-plane loaded masonry walls with fibre-reinforced-polymers (FRP)</i> <b>Mahmood, Russell and Ingham</b> <i>Laboratory testing of unreinforced masonry walls retrofitted with glass FRP sheets</i> <b>Zhuge</b> <i>FRP retrofitted URM walls under in-plane shear – a review of available design models</i> <b>Zhuge</b> <i>Numerical study of URM walls retrofitted with cable and FRP</i></p>	<p><b>Session 7B: Masonry Materials</b> <b>Geoff Edgell</b> (Chair) <b>Hendrickx, Minet, Van Balen and Van Gemert</b> <i>Workability of mortars with building lime: assessment by a panel of masons versus lab testing</i> <b>Walloch, Graber and Lang</b> <i>Self-consolidating grout investigation: making and testing prototype mix designs</i> <b>Nichols, Dietz and Brown</b> <i>The properties of beehive kiln fired bricks used in a nineteenth century building</i> <b>Limbachiya, Fudge and Roberts</b> <i>Behaviour and design of low density aircrete masonry</i> <b>Fried, Ali and Roberts</b> <i>The impact of unit properties on masonry flexural strength using thin layer mortar</i></p>	<p><b>Session 7C: Numerical Modelling</b> <b>Paulo Lourenço</b> (Chair) <b>Yu, Wu and Griffith</b> <i>Numerical analysis of out-of-plane loaded masonry wall using homogenization technique</i> <b>Yang, Zheng, Zhang and Yang</b> <i>Finite element analysis of the temperature stress of concrete perforated masonry</i> <b>Peng, Gu and Chen</b> <i>Computer simulation of load-deformation curves for masonry walls in pseudo-static tests</i> <b>Augenti and Romano</b> <i>Seismic design of masonry buildings through macro-elements</i> <b>Augenti and Romano</b> <i>Qualification tests for micro and macro modelling of Tuff masonry structures</i></p>
10:10-10:40	Coffee break (Bellevue Terrace)		
10:40-11:40	Keynote Address (Pavilion Ballroom 1) <b>Yuri Totoev</b> (Chair): <b>David Biggs</b> <i>The Disasters of September 11, 2001</i>		
11:40-1:00	Lunch (Epic Brasserie)		
1:00-2:40	<p><b>Session 8A: Construction Detailing</b> <b>Norman Bright</b> (Chair) <b>Martens and Bertram</b> <i>Shear strength of clay brick masonry including damp proof course</i> <b>Adell, García-Santos, Lauret, López, Martín, Peña, Pol, Timperman and Vega</b> <i>6m span lintels tests on a new wall PI – brackets type</i> <b>Richter, Formoso and Masuero</b> <i>Analysis of pathological defects of load-bearing masonry technology in low income projects</i> <b>Bingel and Bown</b> <i>Full-scale testing of vertically restrained masonry cladding</i> <b>Nazar and Sinha</b> <i>Behaviour of interlocking grouted brick masonry under low cycle fatigue loading</i></p>	<p><b>Session 8B: Reinforced Masonry</b> <b>Nigel Shrive</b> (Chair) <b>Johnston</b> <i>Free-standing masonry privacy walls</i> <b>Mosele, da Porto, Dalla Benetta and Modena</b> <i>Experimental behaviour of newly developed system for load bearing reinforced masonry walls</i> <b>Bean Popehn and Schultz</b> <i>Design provisions for post-tensioned masonry walls subject to lateral loading</i> <b>Thompson and Lang</b> <i>Effects of confinement reinforcement on the performance of lap splices in concrete masonry</i> <b>Mjelde, McLean, Thompson and McGinley</b> <i>Performance of lap splices in concrete masonry shear walls under in-plane loading</i></p>	<p><b>Session 8C: Fire Resistance and Corrosion</b> <b>David Biggs</b> (Chair) <b>Nguyen, Meftah, Chammas and Mebarki</b> <i>Fire resistance modelling and numerical simulation of masonry partition wall behaviour</i> <b>Kelly and Bingel</b> <i>An evaluation of the BS EN 1996-1-2 simplified model for predicting fire resistance of loadbearing clay masonry walling</i> <b>Borchelt and Swink</b> <i>Fire resistance tests of brick veneer wood frame walls</i> <b>Batis, Vintzileou and Stathatos</b> <i>Protection of the reinforcement of masonry in corrosive environments</i> <b>Hagel and Lissel</b> <i>Instantaneous corrosion rates of ties embedded in mortar joints of brick veneer walls using the linear polarization technique</i></p>

2:40-3:10	Coffee break (Bellevue Terrace)		
3:10-4:10	<p><b>Session 9A: Masonry Durability</b>  <b>Carl-Alexander Graubner</b> (Chair)  <b>Twelmeier, Sperbeck and Budelmann</b> <i>Restoration mortar for historical masonry – durability prediction by means of numerical and engineering models</i></p> <p><b>Lawrence, Testone, Sugo and Page</b> <i>An investigation of factors affecting the durability of masonry mortar</i></p> <p><b>Forth, Zoorob and Thanaya</b> <i>Time-dependent performance of Bitublock single leaf masonry</i></p>	<p><b>Session 9B: Historical Masonry</b>  <b>Dirk Martens</b> (Chair)  <b>Anzani, Binda, Cantini, Cardani and Condoleo</b> <i>Cracking of the apse of St. Lorenzo in Cremona: structural investigation and monitoring</i></p> <p><b>Sorace and Terenzi</b> <i>Redesign of an historical masonry stronghold incorporating a base isolated floor</i></p> <p><b>Binda, Zerbi, Condoleo, Mannucci and Tedeschi</b> <i>Study of a natural resin used as joint for the brick masonry of Hindu temples in My Son (Vietnam)</i></p>	<p><b>Session 9C: Combined Systems</b>  <b>Michael Griffith</b> (Chair)  <b>Augenti and Parisi</b> <i>Preliminary analysis on masonry - RC combined systems: structural assessment</i></p> <p><b>Edgell and Clear</b> <i>Comparative tests on aggregate concrete blockwork walls containing wind posts and bond beams</i></p>
4:10-4:40	Conference Close (Pavilion Ballroom 1)		

**Session Location Guide**

- Keynote Address: Pavilion Ballroom 1**
- Masonry and Sustainability: Pavilion Ballroom 1**
- State of the Art Reports: Pavilion Ballroom 1**
- Sessions A: Pavilion Ballroom 1**
- Sessions B: Promenade Room 1**
- Sessions C: Promenade Room 2**
- Sessions D: Pavilion Ballroom 2**
- Trade Displays: Bellevue Terrace**
  
- Audiovisual Preparation: Pacific Boardroom**

