



architecture
bulletin

mar/apr 2011

REVIEW

Heritage Buildings & Sustainability Forum

GREEN RATINGS TOOLS

As ratings tools are strengthened,
demolition could become a costly option

HERITAGE + SUSTAINABILITY

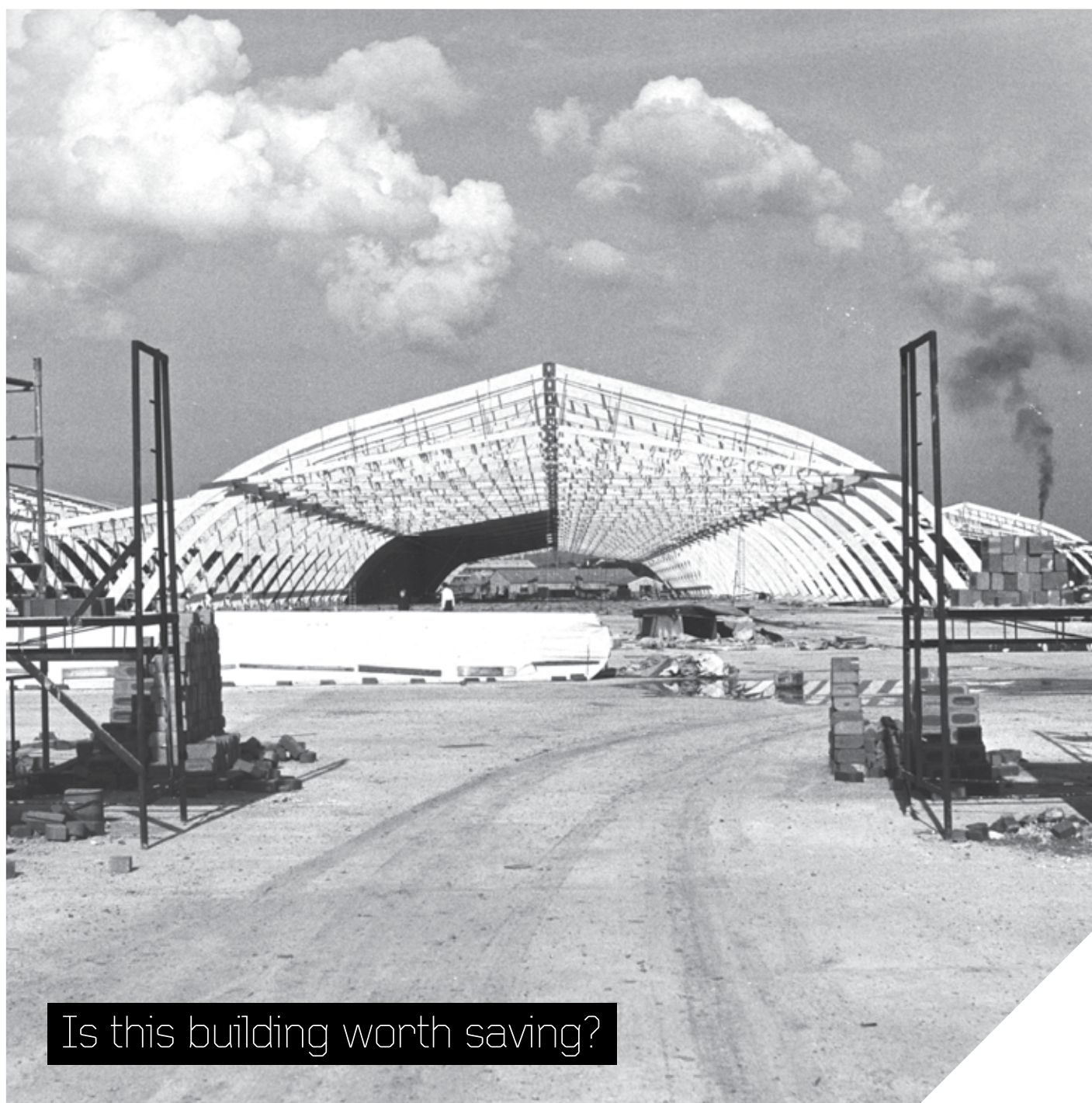
Case studies in recent heritage projects
that have improved sustainability

AUTUMN CALENDARS

Network events / Tuesday Night Talks

Sustainable heritage

Why adaptation and conservation is a sustainable long-term strategy



Is this building worth saving?

Don't miss these industry-leading events for 2011

As Australia's leading exhibition event organiser, Diversified Exhibitions Australia invites you to another year of leading industry-specific trade events. Keep abreast of architecture and design trends, discover the latest products and meet face-to-face with the names behind the industry's leading brands. You'll also hear from some of the most progressive international and local talent while staying up-to-date with industry news, so make sure you mark the dates in your 2011 diary now.

Mark the dates in your diary now



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Sydney Convention & Exhibition Centre

The only dedicated hotel refurbishment and design event in the southern hemisphere bringing together the best in the hospitality industry. Discover the latest design and architecture trends and increase your industry-specific knowledge for your next hotel refurbishment project, pub renovation or venue upgrade.

hhdexpo.com.au



designEX 13-15 April 2011
Melbourne Convention & Exhibition Centre

Australia's longest running and most prestigious design and architecture event returns to Melbourne in April. Celebrate the best in design innovation and see hundreds of leading brands come together to showcase their latest product offering. The international seminar series returns with top line speakers and discover a range of inspiring new feature areas.

designex.info



DesignBUILD 11-13 May 2011
Sydney Convention & Exhibition Centre

Australia's largest, most comprehensive building and construction exhibition comes to Sydney in May. From planning to post construction, discover all that's new, innovative and sustainable in building design from the industry's leading companies.

designbuildexpo.com.au



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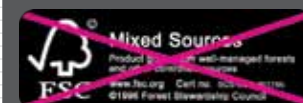
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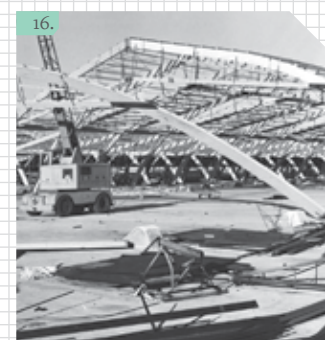
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On the cover

The 1950s factory of plywood manufacturer Ralph Symonds represented the peak of laminated plywood arch construction in its day. Today its future is uncertain. Photo: Mitchell Library, State Library of NSW



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PRESIDENT'S MESSAGE

This is my last message to you as President of the Institute's NSW Chapter. The last two years have seen substantial progress in many of the Chapter's spheres of activity.

Planning reform

One of my first tasks as the incoming President was to attend a hearing by the Legislative Council's Standing Committee on State Development, in which the Institute was given the opportunity to speak to its submission to the Committee's inquiry into the NSW planning framework. We advocated a new planning act focused on strategic planning and a high level authority based on the WA Planning Commission model.

It was gratifying to see the Committee acknowledging the case for new legislation in its report; we will be strongly advocating decisive action on this issue early in the term of the new government.

Architecture awards

The awards program is the Chapter's most visible activity: our annual opportunity to promote the benefits of architecture to the community.

The quality bench mark is consistently very high from one year to the next. But on a quantitative level, the program was in danger of becoming a victim of its own popularity. We had reached a consistent plateau of 200 entries each year, which was more than could be comfortably handled by one jury. So we took the decision to spread the enthusiasm and commitment around to a larger group by creating separate juries for the different awards categories.

This new system worked very successfully for the 2010 awards; I'm confident it will be a fixture in future years for as long as the program maintains its current high level of participation by our members.

Learning activities

One of the most reliable measures of the Chapter's success with its members is the level of attendance at CPD events — including Refuel sessions, the National Seminar Series and Tuesday Night Talks. The most important innovation during my term as President has been a clearer differentiation between the various strands of learning activities available at Tusculum through different branding: ArchiTECH (materials & products),

ArchiBUSINESS (building better practices), ArchiINFO (information & advice) and ArchiVIEW (ideas & opinions).

We have been progressively tracking members' response to these activities, and I am pleased to report that in the two years from 2008 to 2010 attendance at Tusculum learning activities increased by 33 per cent from 2,652 to 3,528. Added to last year's attendance at Chapter network forums and events, a total of 6,286 members attended some form of activity connected to, or run by, the Chapter. This is equivalent to each individual member attending more than two events each year. I'm sure we can keep improving on these figures as member involvement increases.

Outreach

One of the most important legacies I inherited from my predecessor, Dr Deborah Dearing, was the Sydney Architecture Festival. Founded in 2007, this collaborative enterprise of the Institute and the Architects Registration Board has expanded from a one-day event on World Architecture Day to a true festival that now runs for the best part of three weeks, incorporating events at Customs House, the Museum of Sydney, the State Library, Object Gallery, Government House, the Powerhouse Museum and Tusculum. Last year the Festival culminated in the Historic Houses Trust's ever-popular Sydney Open weekend on 6/7 November.

As the Festival itself has grown, so too has the Institute's own activity within it: Architecture on Show. What began as a successful weekend fair day in the forecourt at Tusculum is now expanding to a series of talks to be presented initially at Surry Hills Library and Community Centre, and eventually in other metropolitan libraries.

The net effect of all this activity is to extend the conversation about architecture well beyond the walls of Tusculum, which, in my view, can only be good for the profession. It's just as important to have a general public informed and knowledgeable about the work we do, as it is to have enlightened and supportive clients in the private and public sectors.

The handover

In the process of delivering this final message to members, I'm also handing the Presidential baton to my successor, Matthew Pullinger, who will introduce himself to you in his new role in the next issue. Matthew has been an energetic

and thoughtful contributor to the work of Chapter Council during my term as President. He has been the driving force behind our questions (below) to the three major political parties, based on similar approaches made in past elections. Although we have had to go to print without their responses, we will publish them on the Chapter website as soon as we receive them, and in the next issue.

I thank fellow councillors and members for your support over the past two years. It has been a privilege to have had a leadership role in such a lively organization. I can only hope that my forthcoming year as National President will be as stimulating and enjoyable. ■■



Brian Zulaikha
NSW Chapter President

NSW State Election Q&A

In the lead-up to the March 2011 New South Wales State election, the NSW Chapter of the Institute sent the following questions to the offices of the Labor Party, The Coalition, and The Greens. At the time of printing this edition of *Architecture Bulletin*, we had received no responses, but plan to publish the answers online and in the May/June issue.

1. Planning legislation / Part 3A

The present legislation is complex and difficult to navigate. In our submission to the 2009 Legislative Council Inquiry the Institute recommended the introduction of new planning legislation focused on strategic planning and the establishment of a high level authority modelled on the WA Planning Commission.

Does your party support these proposals?

The Institute also considers that most major projects now determined by the Minister should go to the Planning Assessment Commission as an independent expert panel.

Are you considering any changes to the operation of Part 3A?

2. Extension of SEPP65 design principles

The SEPP65 design principles and the operation of design review panels have had an undoubted beneficial impact on the quality of residential apartment buildings in NSW during the last decade. A report prepared for the Urban Design Alliance, supported by the Institute, has recommended the extension of these principles to other development types (particularly other forms of multi-unit housing) and wider use of design review panels. The Metropolitan Plan for Sydney 2036 recommends similar proposals.

Does your party support them?

3. Barangaroo

The Barangaroo planning and tender process has been deeply flawed. The Institute advocates a review of the current approved master plan and greater transparency in future decision-making for this major site. There are opportunities to achieve a better balance between public benefit and commercial development, particularly in the Headland and Barangaroo Central precincts.

What is your party's policy for the future of the Barangaroo development?



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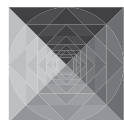
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CHAPTER MANAGER'S MESSAGE

March sees a change of Chapter President and the induction of new Chapter Councillors, so I'd like to welcome our new NSW President, Matthew Pullinger, ably assisted by Councillors Adam Haddow, Joe Agius, Gerard Reinmuth, Glen Spicer, Chris Jenkins, re-elected Councillors David Springett and Esteban Insausti, and newly elected councillors David Holm, Alex Kibble and Peter Sarlos. On behalf of the Chapter, I'd like to thank the outgoing councillors Steve Kennedy, Agi Sterling, Abbie Galvin and Ben Hewett for their contribution to the Chapter, and make a special thank you to outgoing Chapter President, Brian Zulaikha.

Also new for 2011, is the new-look student awards program. As reported in previous issues of *Architecture Bulletin*, the Chapter is upgrading the Student Awards program to reflect recent changes to the curriculum, making the program more relevant to the rapidly changing environment in which architects practise. The program acknowledges excellence in scholarship and has been designed to encourage greater participation from students by offering substantial prizes across eight categories.



AUSTRALIAN INSTITUTE
OF ARCHITECTS
NSW GRADUATE &
STUDENT AWARDS
Excellence In Architectural Scholarship

The new logo (*above*) is designed to capture the idea of creative minds reaching the pinnacle of excellence. A prize pool of more than \$40,000 has been made possible by the generosity of our

Moves & Appointments

Calder Flower Architects announces its launch following the merger of Flower and Samios P/L with Lara Calder Architects P/L. **Gavin Adams** is promoted to Principal in Woodhead's Brisbane studio.



Gavin Adams

sponsors Mirvac Design, Lend Lease design, Partridge Partners, Woods Bagot, FJMT, Crone Partners and Group GSA.

Our leading patron Mirvac has been supporting the Student Awards program for more than 20 years. This year, for the first time, they will sponsor the coveted NSW Design Medal — *the gold medal for architecture students in New South Wales*. "We are thrilled to be continuing our sponsorship and be part of the Institute Student Awards program, particularly the Gold Medal," says Michael Wiener. "It is truly an honour to take part in and nurture the next generation of architects who will create and shape our built environment."

The Awards Presentation evening will be held in May at Tusculum, followed by an after-party for students at a local venue. ■■

Roslyn

Roslyn Irons
NSW Chapter Manager

Patrons news

Tanner Architects have been working in Brisbane on the Brisbane City Hall since mid 2009 and in light of the recent devastating floods, have offered Brisbane City Council two weeks of pro bono professional time. Amid continuing work on the Town Hall project, the firm opened its permanent Brisbane office on 7 February, with the launch project led by Practice Director, Megan Jones. "We are extremely proud to have opened our Brisbane office," says Tanner Architects Managing Director, Alex Kibble. "Solid representation for the firm in Brisbane will open doors across the state, adding to our already strong New South Wales and ACT client base."



Phil Bowen

Phil Bowen is promoted to Principal at Woodhead, leading the Retail portfolio, based in Sydney.

Craig Guthrie joins Hassell's Melbourne studio as a Principal. Craig is a landscape



Photo: (top) Brett Winstone. Lobby render, Group GSA.

GroupGSA and Hassell are jointly designing and delivering the refurbishment of the 27-storey Queens Square Law Courts (*above*) in Macquarie Street. This substantially extends the life of the 1977 MSJ building and transforms the technologies and environments for its judiciary and public operations. This brief challenged the 1970s concepts of the enclosed court, calling for a clear expression of the openness and transparency within the judicial system, through welcoming and light-filled spaces. GroupGSA and Hassell have been working with the original architects of this awarded building.

Woodhead launches its new website (www.woodhead.com.au), and announces new staff appointments and promotions, below.

architect and urban designer, specialising in large-scale urban environments. **Richard Huxley** has joined Woodhead as Principal, heading up the residential portfolio, based in Melbourne.



Richard Huxley



Food for thought: the Greenhouse restaurant at Sydney's Circular Quay; open till 28 March. Photo: courtesy Viridian.

Greenhouse—till 28 March

Opened in Circular Quay in February, Greenhouse (*above*) is a temporary restaurant installation promoting sustainable construction techniques and operational process. Conceived and created by Joost Bakker, a Victorian-based environmental artist, Greenhouse is intended as a model of sustainability, with green roof-top garden filtration system, straw bale insulation, and large double-glazed window panels, argon-filled and made of part-recycled glass by Viridian (ThermotechTM) for further insulation. The main structure is composed from three re-purposed shipping containers with auxillary framing made from recycled steel. Flooring is rubber tiles, re-purposed for the project from large mining conveyor belts. The restaurant menu is local and seasonal, with produce grown on the roof: 40 tonnes of soil anchor this building to its site and the whole thing is powered by cooking oil from the kitchen, converted into bio-diesel.

New Members

Member level 1

Jim Flook
Josef Grzelak
Michael Morony

Sidney Rofe

Vanessa Mesman
Anthony Gill
Pui-Yu Lee

Graduate

Robert Curran
Susan Oktay

Affiliate Level 1

Rodney Drayton



Karl Traeger

John Miller joined Hassell's Melbourne studio in January 2011 as a Principal. John relocated from the UK as a specialist health sector architect, with a 25-year career leading projects in the UK, Brunei, Hong Kong and Africa.

Mary Papaioannou rejoined the Hassell's Melbourne studio as Principal Urban Designer after four years working in Abu Dhabi. **Karl Traeger** is promoted to Principal in Woodhead's Adelaide studio.

Bookshelf

Rafael Moneo Remarks on 21 Works

Thames & Hudson

Rafael Moneo-Remarks on 21 Works
Author Rafael Moneo
Publisher Thames & Hudson
RRP \$125 Members \$112.50
www.architext.com.au

Readers of *The Architectural Review*, *Quaderns*, or *El Croquis*, will already be familiar with Moneo, but in this beautiful and absorbing new publication, we are again reminded that as an architect, Moneo can practise, draw, teach and write.

The book's 21 projects appear in chronological order, with project text supported by drawings and images from the office. At the end of each section, full colour plates by American photographer Michael Moran carefully document panoramic views or tightly cropped details of the projects, either occupied by people, or darkened by shadows.

These are large institutional projects, with strong messages, so unbuilt projects are not included, and for good reason. Moneo is a traditionalist, claiming only to engage with the past to pursue a better future, and unlike many of his peers, is unimpressed by contextualism without a deep sense of history and the indiscriminate adaptation of historic buildings and overt fragmentation. All the featured projects have an asymmetrical composition, an economy of light, and are monumental in their material use, reminding us of the need for discipline in treating every project as the embodiment of an idea. ■■

Glenn Harper, Architect Associate, Hassell

Network events

ANSR

Architects Network Southern Region

Contact Paul Fiegel, (02) 9529 6466, pfiegel@pacific.net.au

3 MARCH, 8–9.15AM

Monthly Network meeting

1 informal CPD point

Cost \$20

Venue Camelia Gardens Teahouse, Caringbah

8 MARCH, 6–9PM

Seminar

New Australian access to premises standards

2.5 formal CPD points

Cost \$30

Venue Kogarah Community Centre, Premier Street, Kogarah

7 APRIL, 8–9.15AM

Monthly Network meeting

1 informal CPD point

Cost \$20

Venue Camelia Gardens Teahouse, Caringbah

5 MAY, 8–9.15AM

Monthly Network meeting

1 informal CPD point

Cost \$20

Venue Camelia Gardens Teahouse, Caringbah

10 MAY, 6–9PM

Seminar – Topic TBA

2.5 formal CPD points

Cost \$30

Venue Kogarah Community Centre, Premier Street, Kogarah

2 JUNE, 6–9PM

Monthly Network meeting

1 informal CPD point

Cost \$20

Venue Camelia Gardens Teahouse, Caringbah

BANG

Northern Beaches Network

Contact Adam Pressley, 0412 348 575, adam@aaarchitect.com

15 MARCH, 7.30–9AM

Breakfast at the beach workshop

Upper-level additions: practical material options

Speaker Tim Hookins, Bill Handley

1 formal CPD point (Design)

Venue On Shore Brasserie, 16 The Strand, Dee Why Beach

19 APRIL, 7.30–9AM

Breakfast at the beach workshop

Complying development code changes

Speaker Open discussion

1 formal CPD point (Design)

Venue On Shore Brasserie, 16 The Strand, Dee Why Beach

17 MAY, 7.30–9AM

Breakfast at the beach workshop

Marketing your practice

Speaker Adam Pressley, Tom Simmat

1 formal CPD point (Practice Management)

Venue On Shore Brasserie, 16 The Strand, Dee Why Beach

21 JUNE, 7.30–9AM

Breakfast at the beach workshop

Documentation for builders

Speaker Open discussion

1 formal CPD point (Documentation)

Venue On Shore Brasserie, 16 The Strand, Dee Why Beach

COUNTRY DIVISION

Contact Wendy McCloskey, (02) 9246 4009, wendy.mccloskey@raia.com.au

30 APRIL, 8.30AM–5PM

Mini conference

Climate change and population

Speakers (Various) Patrick Mahedy begins with an update on CSIRO and BOM view of the state of the Australian environment with projections for the next 15 years. This is followed by discussions on the role of architects in mitigating climate change.

Cost Members \$150, non-members \$240, graduates, \$85

6 formal CPD points

Venue Berida Manor, Bowral

GREATWAN

Western Sydney Network

Contact Nick Simitzis, (02) 9892 1135, nick@arcimage.com.au

7 APRIL, 6–9PM

Field trip

Parramatta heritage site

2 formal CPD points

Cost \$30 (includes refreshments)

Venue Female Orphanage School, University of Western Sydney

16 MAY, 6–9PM

Talk – TBA

2 formal CPD points

Cost \$30 (includes refreshments)

Venue Merrylands Community Centre, 17 Miller Street, Merrylands (Miller St Room)

IWAN

Inner West Network

Contact David Blackwell, (02) 9555 8322, Ensure you are on the iwan@topica.com email notification list via davidgbl@tpg.com.au

4 MARCH, 7.30–9AM

Talk *New Land & Environment Court process*

Speakers Anthony Whealy, Jodie Wauchope, Gadens Lawyers

1 informal CPD point

Venue TBA

18 MARCH, 12 NOON

Architecture tour

1 informal CPD point

Venue TBA

1 APRIL, 7.30–9AM

Casual meeting

Venue TBA

15 APRIL, 7.30–9AM

Talk – TBA

Venue TBA

6 MAY, 7.30–9AM

Casual meeting

Venue TBA

20 MAY, 7.30–9AM

Talk – TBA

Venue TBA

3 JUNE, 7.30–9AM

Casual meeting

Venue TBA

LOWAN

Lower North Shore Small Practices Group

Contact Clare Carter, (02) 9438 4200, clare@contemporary.net.au

8 MARCH, 8–9.30AM

Presentation *Intelligent specifications*

Speaker Autospec

Venue Infrared, 2/11 Albany Street, St Leonards

Free breakfast, courtesy CMS

5 APRIL, 8–9.30AM

Presentation *ArchiCAD*

Speaker Dixon Andrews

Venue Infrared, 2/11 Albany Street, St Leonards

Free breakfast courtesy CMS

NEWCASTLE DIVISION

Contact Lia Ross, (02) 4960 4200 lia.ross@raia.com.au

9 MARCH, 1–2PM

ArchiTECH Lunch *International Lighting*

1 informal CPD point

Venue Soho, 171 Darby Street, Cooks Hill

9 MARCH, 6–8PM

University lecture series

1 informal CPD point

Cost \$15 (1 lecture), \$35 (3 lectures), students free

Venue Travelodge, Corner of King and Steel Streets, Newcastle

16 MARCH, 6–8PM

University lecture series

1 informal CPD point

Cost \$15 (1 lecture), \$35 (3 lectures), students free

Venue Travelodge, Corner of King and Steel Streets, Newcastle

23 MARCH, 6–8PM

University lecture series

1 informal CPD point

Cost \$15 (1 lecture), \$35 (3 lectures), students free

Venue Travelodge, Corner of King and Steel Streets, Newcastle

24 MARCH, 1.30PM

Blasé Yacht Race

Entry fee \$20

Venue Lake Macquarie Yacht Club

30 MARCH, 6–8PM

National Refuel Series

All the way with Section J

Speaker Michael Shaw

2 formal CPD points

Cost \$50 members, \$75 non-members

Venue Travelodge, Corner of King and Steel Streets, Newcastle

6 APRIL, 1–2PM

ArchiTECH Lunch *Austube*

1 informal CPD point

Venue Soho, 171 Darby Street, Cooks Hill

14 APRIL, 5.30–7.30PM

Launch *Lower Hunter Urban Design Awards*

Venue Port Stephens Council, Mezzanine

19 APRIL, 4PM

Annual General Meeting *Newcastle Division*

Venue 187 King Street, Newcastle

27 APRIL, 6–8PM

National Refuel series

Architects and the mass housing market

Speaker Owen Donald

2 formal CPD points

Cost \$50 members, \$75 non-members

Venue Travelodge, Corner of King and Steel Streets, Newcastle

4 MAY, 1–2PM

ArchiTECH lunch *Weathertex*

1 informal CPD point

Venue Soho, 171 Darby Street, Cooks Hill

18 MAY, 6–8PM

Local seminar

Changes to the bushfire code

Speaker Phil Couch

1 informal CPD point

Cost \$15 members, \$25 non-members

Venue Travelodge, Corner of King and Steel Streets, Newcastle

1 JUNE, 1–2PM

ArchiTECH lunch *Foreverlight Panels*

1 informal CPD point

Venue Soho, 171 Darby Street, Cooks Hill

8 JUNE, 1–2PM

National Refuel series

Applying creative thinking to practice management

Speaker Corporate Growing Pains

2 formal CPD points

Cost \$50 members, \$75 non-members

Venue Travelodge, Corner of King and Steel Streets, Newcastle

SEA

Sydney East Network

Contact Philip Abram, (02) 9363 2222, philipabram@mail.com

9 MARCH, 6PM

Workshop

Timber finishes and coatings + Design for durability

Venue Hughenden Hotel, Woollahra

13 APRIL, 6PM

Workshop: meet the planners

Presenting DAs effectively; Randwick LEP 2011 / associated DCPs; changes to NSW Housing Code

Venue Randwick City Council Chambers

11 MAY, 6PM

Workshop

Services Consultants

Venue Hughenden Hotel, Woollahra

15 JUNE, 6PM

Workshop

Flashings and DP coursing

Venue Hughenden Hotel, Woollahra

SPUN

Upper North Network

Contact John O'Brien, (02) 9361 6378, obrienarchitect@optusnet.com.au

28 MARCH, 6.30–9.30PM

Talk *Legal issues for architects*

Speaker Michael Brampton, Henry Davis York Lawyers

2 formal CPD points

Cost \$35; students \$20 (includes dinner) Bookings only

Venue Garrigal Terrace Room, Roseville Golf Club

18 APRIL, 6.30–9.30PM

Talk *Design confidence with the BCA*

Speaker Michael Eisenhuth

2 formal CPD points

Cost \$35; students \$20. (includes dinner) Bookings only

Venue Garrigal Terrace Room, Roseville Golf Club

23 MAY, 6.30–9.30PM

Talk *Engineering design*

Speaker Paul Bekker, structural engineer

2 formal CPD points

Cost \$35; students \$20. (includes dinner) Bookings only

Venue Garrigal Terrace Room, Roseville Golf Club

27 JUNE, 6.30–9.30PM

Talk TBA

Speaker TBA

2 formal CPD points

Cost \$35; students \$20. (includes dinner) Bookings only

Venue Garrigal Terrace Room, Roseville Golf Club

SUSTAINABILITY + HERITAGE



Sydney Town Hall Solar Power Project

Completed in 2009, Sydney Town Hall's Solar Power Project involved the installation of 240 photovoltaic cells to the principal roof of the building, delivering 60,000 kilowatt hours of electricity annually. A major challenge was fixing the array of solar panels to the roof with minimal physical and visual impact to this important 19th century landmark.

Heritage significance

Sydney Town Hall has heritage significance as an important civic focal point for social and political activities, as well as being a distinctive 19th century architectural landmark.

Constructed on the site of Sydney's first burial ground, the Town Hall was built by successive city architects in two stages: stage one, 1868–1884 (including the clock tower, completed 1873), and stage two, 1884–1889. The resulting style is a composite of neo-Classical and French Second Empire elements.

Although the building was only recently included on the NSW State Heritage Register, its architectural, historic and social importance have long been acknowledged.

The project

As part of its broader program of refurbishment and upgrade works (incorporating environmental control measures) for the entire Town Hall complex, City of Sydney first commissioned a feasibility study for the installation of photovoltaic cells to the main roof. The objective was to maximise the efficiency of

the solar panels while minimising their heritage impact to the building. The study looked at numerous locations for the solar panels. The building's roof comprises a broad-hipped and gabled slate roof over Centennial Hall, flanked to the north and south with flat membrane roof areas.

The panels were ultimately installed on the north-facing slope of the main roof, having regard for issues of overshadowing from neighbouring buildings and visibility. Other locations, including flat areas of the roof, were rejected due to the difficulties of installing the structural support system and visibility of the panels from street level.

Issues

The heritage and technical challenge was to solve the method of fixing the panels to the roof: a design objective was to install the panels in a manner that did not involve the removal of large areas of slate. To solve this, steel mounting brackets were purpose-designed to suit the Welsh slate roofing. The brackets support mounting rails for the panels and are located at intervals along the length of the roof between the slates, fixed to

the steel truss roof structure. This mounting system elevates the array of panels above the roof, allowing for both the maintenance and replacement of the cells and the maintenance and repair of the slate roofing.

The dark panels have a tempered glass front, anti-reflective coating and black anodised aluminium framing. Both the frames and steel support brackets are also dark in colour to complement the Welsh slates. As the roof is largely hidden from the street by the building's parapets, the solar panels are not readily visible by pedestrians.

Technology

The solar array uses Pluto cell technology; the first of its kind to be installed in Australia. Co-developed by the University of New South Wales, the array's ultra-fine cell fingers reduce surface shading, thereby boosting sunlight absorption into the cell.

The array covers a total area of 307 square metres, with the power generated feeding into the building's electrical system. Real-time data about the solar energy produced by the system is extracted at 15-minute intervals and incorporated into

digital displays in the building's foyers and on the Town Hall's website.

The 48-kilowatt installation is expected to reduce greenhouse gas emissions by 62.4 tonnes annually, which is approximately equivalent to the annual emissions generated by the electrical power required for the Council Chambers and the Councillors' offices.

Outcome

This was the first major installation of photovoltaic cells to the slate roof of a state heritage-listed building, and its custom-designed mounting now serves as a model for the sensitive integration of photovoltaic cells to the roofs of historic buildings. ■■

George Phillips

Senior Associate, Tanner Architects



Cleaning house

A *Live Green House* will be on display in Sydney Square (between Town Hall and St Andrew's Cathedral), 5–7 March, showcasing sustainability improvements to the Sydney Town Hall. The display will be an information hub for sustainable technology and innovation, and host a series of talks on energy, water, waste, sustainability rebates and incentives.

Site Sydney Town Hall, 483 George Street, Sydney
Original architects J.H. Wilson; Thomas Sapsford; John Hennessy; George McRae
Date of construction Stage one: 1868–1884. Clock tower completed 1873. Stage two: 1884–1889.
Client City of Sydney
Solar Power Project Architect Tanner Architects
Electrical Engineers NSW Government Architect's office
Contractor Stowe Australia



1. Sydney Town Hall, George Street. **Photo:** courtesy City of Sydney. **2.** The new solar array on the north slope of the main roof, designed to save 62.4 tonnes of greenhouse gas emissions annually. **Photo:** courtesy NSW Government Architect's Office. **3.** Installing the solar panels over the Welsh slate. **4.** The solar panels are hidden from street view by the building's parapet.



39 Hunter Street

6 Star Green Star Rating

Heritage significance

Built in 1916 for the Perpetual Trustee Company, Australia's largest trustee organisation of the early 20th century, 39 Hunter Street was designed by commercial architects Robertson + Marks in the interwar Beaux Arts style. The building, comprising eight floors and a basement, is today listed on the NSW State Heritage Register and City of Sydney LEP.

From the 1960s on, the building underwent major modernisation of its principal entrance and interiors. The interior work entailed removal of almost all original office partitions and floor and wall finishes, upgrading of the two lifts, partial infilling of

two of the light wells, and the installation of suspended ceilings and air conditioning.

In 1996 Jackson Teece conserved the building facades, including the sandstone, slate roofing and copper work, and undertook repair/recoating and reglazing (with laminated glass) of all the steel-framed windows to the Hunter Street frontage.

By 2005, Perpetual's growth had caused the company to outgrow their building, and in 2006 they sold it to the current owner, Kamirice Pty Ltd.

The project

Kamirice sought to reposition the building as A-grade-quality offices, upgrade accessibility, upgrade heritage qualities and maximise sustainability, with a target at that time 5 Star Green Star Office As-built rating.

The parameters of the design process were to maximise natural light into the interiors, upgrade the main entrance and lift service, rationalise the floor plates, and implement water recycling, waste management, energy efficiency, best practice air conditioning and bicycle parking. It also involved updating the conservation management plan and upgrading all internal fabric of heritage significance, namely the stairs, ceilings and the boardroom with its original furniture.

The first stage of the refurbishment works, about 12 months prior to the main construction work, was a separate contract for the strip-out and recycling/re-use of the interior fit-outs of all floors. This allowed a thorough understanding of the building for

documentation purposes and, subsequently, for tenderers. The process was comprehensively audited in order to achieve Green Star credits.

The approved design entailed substantial changes to the building's interiors, including the creation of an accessible entrance, a lobby and a large atrium into which were positioned three lifts accessed by bridges spanning the atrium; the construction of two plant floors; toilets in a light well at the rear, and raised floors for an underfloor displacement air-conditioning system that allowed the original plaster ceilings to be revealed.



Outcome

The design enhances the presentation of the heritage qualities of the building, for example, through interpretation of the principal open stair, removal of mechanical plant from the floor plates, reconstruction and repair of original ceilings and cornices on all floors, and reconstruction of a sandstone balcony above the principal entrance that had been demolished in 1960. On completion in 2010, the building achieved a 6 Star Green Star Office As-built rating. An interior fit-out is currently nearing completion for a tenant who will be occupying the entire building. ■■

Peter McKenzie, Jackson Teece Architecture

5. Perpetual Trustees building. **Photo:** courtesy, Jackson Teece Architecture. 6. A glazed roof cantilevered over the 1916 slate and copper-roofed mansard, and the new atrium is suspended from the plant floors on the left of the image. Air conditioning is supplied to all floors through the ducts constructed within the original light well at the far side; return air rises up via the atrium, through the louvred wall on the left-hand side into the plenum behind. **Photo:** Sharrin Rees. 7. The new atrium allows daylight deep into the reconfigured floor plates. Conserved building fabric of significance includes saw-cut edges of the 1916 Kahn System reinforced concrete floor slabs. New partly glazed bridges span the atrium, serving as lobbies for the new lifts. **Photo:** Sharrin Rees.



The Astor

Facade Conservation

Completed in 1923 in the Interwar Commercial Palazzo Style, The Astor, on Macquarie Street, Sydney, was the first company title residential apartment building in New South Wales. Its entrepreneurial developers John and Cicely O'Brien, and architects, Esplin & Mould intended it to be what might today be called a 'sustainable' place to live. Soon after its completion, the 13-storey tower became a prestigious Sydney address.

The classical style of the iconic off-white palazzo belies The Astor's progressive construction of concrete framing and facade, and its early use of reversible steel-framed windows. These large glazed sections — used in lieu of balconies — take advantage, not just of natural light and ventilation, but of commanding views over the city, harbour and Botanic Gardens.

Heritage significance

The Astor has been nominated to the State Heritage Register and is listed on the Sydney LEP (2005) register of significant buildings. The building is deemed significant as an example of the initial development of residential apartments in Sydney as a prestige housing form, as well as for the early use of a concrete frame and reversible steel windows.

The project

Although remedial works including repainting had been undertaken in the mid 1990s, they failed to arrest the ongoing deterioration of

the windows. While some were in relatively good condition, most had deteriorated, with severely corroded steel sections, warped frames, cracked glass, peeling paint, cracked putty, and non-functioning window mechanisms causing water ingress and air infiltration, and posing potential hazards. The upper sashes of virtually all the windows had been fixed shut, contributing to reliance in many apartments on air conditioning instead of natural ventilation.

After investigation into the current condition of the facade and a study of conservation options, the board and shareholders of The Astor Pty Ltd proceeded with The Astor Facade Conservation Project. The first few completed floors have now been revealed from beneath their scaffold.

Issues

Hyder Consulting's investigations, trial repairs, and conservation management plan policies prepared by NBRS + Partners, determined the repair and conservation strategy at The Astor. Consideration of both sustainability and heritage impact initially favoured repairing the existing windows in situ. However, remedial works to a 13-storey residential building in the heart of town, occupied throughout construction, posed issues in terms of design, durability and project cost, not to mention the amenity impact on residents.

Replacement, rather than repair, proved the best option. It allowed design issues with the existing windows to be addressed, and

satisfied the client of the likely longevity of the completed work. This is the most substantial works project undertaken in The Astor's nine decades, and will restore the capacity of the windows to be reglazed internally.

The less desirable new aluminium option would have been a chunky addition to the facade with obvious heritage impact, reducing the light into the apartments, and views out. The like-with-like steel replacement is providing window members with comparable fineness to the original installations, and approximately half the embodied energy of new aluminium.

External shading devices on the facade would have been inappropriate. To improve thermal performance, low-emissivity (low-E) clear glass was selected. This reduces the solar heat gain without significantly affecting the building's presentation as clear-glazed. Compared with clear glass, low-E glass transmits 90 per cent of visible light, reduces solar transmission by 20 per cent and improves insulation by 40 per cent.

Outcome

While the windows of other historic buildings have been refurbished or replaced, only to be fixed shut for air conditioning, The Astor's reconstruction of operable windows reinstates the natural ventilation of apartments, otherwise reliant on air conditioning. When the conservation project is completed later in 2011, it will not only have reconstructed the fabric of the building, but restored much of the original light and natural ventilation to a building that remains one of Sydney's most desirable city addresses. ■■

Peter Johnsson, Principal Engineer,
Hyder Consulting
Don Wallace, Heritage Consultant,
NBRS+Partners Architects

Site The Astor, 123–125 Macquarie Street, Sydney
Original architects Esplin & Mould
Original engineers Hart & MacDonald
Original builders Concrete Constructions Ltd
The Astor Facade Conservation Project
Project Management Thinc Projects
Principal Facade Design Consultant
Hyder Consulting
Company Architect to The Astor Pty Ltd
NBRS+Partners Architects

8. The Astor on Macquarie Street, Sydney, before the project commenced. 9. New steel window replacement in progress. **Photos:** courtesy NBRS+Partners and Hyder Consulting.



Heritage Buildings & Sustainability Forum

In November 2010, the Queensland Heritage Council (QHC) hosted the Commercial Heritage Buildings & Sustainability Forum, discussing the challenges of balancing heritage management with sustainable development principles in a commercial context.

The dialogue about integrating heritage conservation with sustainability initiatives in a commercial building context is relatively new, and the key message from the forum was about the challenge of balancing sustainability and heritage management in light of ecological sustainable development principles.

One speaker suggested that the mounting environmental costs of wasting embodied energy should be taken seriously, and that the union between heritage management and environmental regulation should see the many 'heritage' variables become part of the bigger sustainability picture.

Another speaker suggested that until carbon is priced it is difficult to place a commercial value on heritage conservation, adaptive re-use and sustainability practice.

David Eades, Chair of the QHC, suggested that recent and proposed legislative change in Queensland, such as the mandatory disclosure of energy ratings and government occupation policies requiring 5 Star (or better) ratings, is creating significant economic stress on heritage buildings, threatening their very existence.

Jim Gard'ner, Executive Director of Heritage Victoria, proposes a life-cycle assessment approach to measure embodied energy in heritage buildings. While embodied energy is not an exact science, new measures need to examine the environmental performance over the life of a building. For example, the embodied energy used to produce the raw materials and construction of a building, and the energy used for a building's operation, including upgrades, need to be measured. From these measurements, Gard'ner suggests the survival of heritage buildings should include improving their environmental performance to guide suitable design solutions and well-considered energy-efficient, adaptive re-use options, like maintaining as much of the original fabric as possible but replacing outdated air-conditioning systems. Using case studies to measure and assess the

embodied energy of typical 'building types' with their adaptive re-use potential will, in turn, help to build a body of research material for the future review of heritage and environmental policy and regulation.

Overall, the forum highlighted the benefit of linking heritage conservation to sustainable development, however, the message about embodied energy in heritage buildings should be promoted; a change in the mindset and language is needed to include adaptive re-use with ecologically sustainable practices for commercial buildings. QHC suggest that until logical interventions are made — for example, developing a rating system that includes the life-cycle approach of embodied energy inherent in heritage buildings — then the risk of losing heritage values will continue. ■■

Rachel Jackson, Associate,
Godden Mackay Logan Heritage Consultants

For more on the forum, go to <http://www.qldheritage.org.au/commercial-heritage-buildings-sustainability-forum.php>

Lend Lease prices carbon in buildings

In recent months the media has reported stories about future energy price rises as a result of the huge investment needed to upgrade energy infrastructure, about money wasted on costly ineffective carbon abatement programs, and about the ongoing debate regarding the best solutions to climate change. Not one of them has mentioned buildings, despite the fact that they are an untapped goldmine.

After all, many of the buildings in city skylines are guzzling energy and pumping out carbon emissions like there is no tomorrow. Yet the refurbishment of existing buildings is one of the cheapest and easiest opportunities for delivering deep, fast reductions in carbon emissions. It is possible to halve carbon emissions in non-residential buildings through design, technology systems and power generation using existing skills and technology.

Better still, energy efficiency improvements to buildings deliver a range of economic and social co-benefits, including job creation, skills growth, health and productivity improvements, and significant savings to energy infrastructure investment.

But the property industry is hamstrung. Before a refurbishment is planned, let alone designed, there needs to be a way to accurately

evaluate a building's performance and to make informed investment decisions about its improvement, as well as a verifiable assessment of the success of designs or technologies implemented. But there is currently no way of making any of these measurements in a way that complies with international carbon-accounting rules.

To change this, Lend Lease is developing a solution that will enable everyone from building owners and financiers, to designers and engineers, town-planners and national governments, to accurately measure, verify and report the actual energy and carbon performance of a building.

The project involves detailed analysis of existing and proposed policy frameworks and solutions in the European Union, Asia, the US, Canada and Australia, research review, and consultation with a wide international network of industry players, policymakers and many more in between.

It's about developing a reliable, globally applicable methodology to capture raw data, from which it will be possible to establish baselines, set benchmarks and put a monetary value on the carbon in buildings; thereby enabling a reduction of carbon emissions in all existing non-residential buildings at the optimal level.

Importantly, the methodology is complementary to the national emissions trading scheme already established in the European Union. A range of global authorities, including the Australian Carbon Trust, the World Bank, and the United Nations Framework Convention on Climate Change, are interested in incorporating the methodology into their own policy and planning programs.

The challenge now is for the Australian property industry to recognise the need and the benefit of this methodology, and to convince the Federal Government to endorse it so the industry can get on with the job. ■■

Maria Atkinson and Ché Wall co-founded the Green Building Council of Australia (GBCA) in 2002. Ché Wall is the founding Chair of the World Green Building Council, and former Managing Director of WSP Lincolne Scott. Maria Atkinson is an environmental scientist and Group Head of Sustainability for Lend Lease. In 2010 Atkinson and Wall established a sustainability solutions business at Lend Lease. To find out more, email sustainability@lendlease.com.au.

Sustainable heritage... as ratings tools improve, the case for conservation could outweigh demolition.

This article is adapted from a research paper by *Jennifer Faddy*.

Sustainability and heritage frameworks

In both heritage and sustainability circles, there is currently little consideration for the potential value of existing buildings and/or heritage items as sustainable structures. A CSIRO study into embodied energy conducted in 2008 suggested that re-use of building materials in Australia would save about 95 per cent of embodied energy that would otherwise be wasted, and that the retrofitting of existing buildings should be the main focus of future construction.

Sustainability rating tools have developed from seminal studies in the 1970s that determined the ratio of energy consumption of a building to be in the order of 75 per cent operational and 25 per cent embodied energy, leading to the bias in current rating tools towards favouring operational improvements. Heritage listing processes remain based on the initial models adopted in the 1960s, with no heritage criteria to assist in determining the value of heritage structures as sustainable structures.

While purists might argue that this is not the role of heritage assessment, it is disappointing that this aspect of the value of our heritage items is ignored, as heritage conservation is a contributor to sustainability.¹

How is the value of existing structures currently measured?

Having reviewed sustainability measurement tools and guides relevant to New South Wales (see page 11), I found only one that provides

recognition of the benefits of re-using existing structures (the Green Building Council of Australia's (GBCA) voluntary Green Star system).

The GBCA Green Star rating tool uses up to 6 Stars (75+ points) to measure performance. The recognition of the re-use of existing structures is achieved by a maximum of six points being available for building re-use (split between credits for re-use of a facade [maximum two points] and re-use of a major structure [maximum four points]), and a maximum of one point being available for re-using materials to the value of at least 2 per cent of the project's total contract value. Additional points are available for associated benefits such as re-use of land and waste minimisation, which are also available for proposed new buildings. In my view, the Green Star tool does not differentiate between heritage structures and other existing structures.

How should this value be measured?

Recognise inherent embodied energy

The CSIRO has investigated how and where energy is used in the construction of buildings, and assessed the environmental benefits of recycling. It has determined that 'the energy embodied in existing building stock in Australia is equivalent to 10 years of the total energy consumption of the entire nation' (CSIRO, 2008).

Given that the NSW Government aims to become carbon neutral by 2020, one obvious way of minimising embodied energy in new

projects is by 're-using and refurbishing existing buildings as opposed to constructing new buildings' (GBCA, 2008b).

Certain building types, floor-plate sizes and heights can provide indicators of buildings suitable for re-use. As part of the development process it should be necessary to fully consider the environmental impact of any proposed demolition, including the potentially wasted² embodied energy of the existing structure if demolished before the end of its life span.

Energy and materials over time

Compare the longevity of the existing and proposed structure and materials. Research in Canada has determined that for a typical office building:

- By year 25, an additional 57 per cent of its initial embodied energy would have been expended due to replacement of envelope, finishes and services
- By year 50, the recurring embodied energy would be 144 per cent
- By year 100, the recurring embodied energy would be almost 325 per cent (Canadian Architect, 2010).

Preoccupation with initial cost and the lack of consideration of longevity of materials can have major implications for the recurrent embodied energy use of a building over its life cycle. Some existing buildings perform better in this regard than more modern structures, for example, where the materials are of higher quality and require less repair or replacement over their life span, or where facades are masonry and do not require frequent cleaning. >

Assess how long the ‘payback’ period is
Hypothetical case studies have compared scenarios presented by Dan Mackenzie of Steenson Varming, based on Craig Roussac’s research (Old Star Green Star, *Architecture Bulletin* Sept/Oct 2009), to explore the concept of a new building paying back its embodied energy over its lifetime. They make an assumption that almost any existing building can be upgraded to meet a 4.5 Star Green Star rating level without major alteration to its structure, and demonstrate that, in the short term, substantial benefits in reducing the growth of greenhouse gas emissions can be gained from upgrading and maintaining existing buildings.

In summary, the investigations concluded that upgrading and maintaining an existing building to a 4.5 Star Green Star rating is 2.5 times more efficient than demolishing to build an equivalent 5 Star Green Star building (measured at year 30 in the building cycle), and that the new 5 Star Green Star building would take about 200 years to pay back the embodied energy from its construction if maintained at 5 Star Green Star efficiency. The investigations also concluded that the energy output of an existing 2 Star Green Star building that is not upgraded would match the energy output of a newly constructed and well-maintained 5 Star Green Star building at about

“...upgrading and maintaining an existing building to a 4.5 Star Green Star rating is 2.5 times more efficient than demolishing to build an equivalent 5 Star Green Star building measured at year 30 in the building cycle”

year 45, where the benefits of the embodied energy in the existing 2 Star Green Star building are negated by the operational inefficiencies.

Next steps

The net benefit of demolishing an existing building and rebuilding should be subject to the same rigour as the financial analysis at the project development stage. In order to effectively encourage retention of existing structures, sustainability tools should require that all consultants understand the performance of an existing building in its totality before decisions to demolish are made. Rating tools should also work towards establishing a body of evidence as to how well existing or heritage buildings perform, rather than assuming that they are all inefficient. The tools should provide incentives to change the current approach so that ‘operational efficiency’ isn’t used as a red herring to argue for buildings to be demolished before the end of their useful life (Buono, 2009).

Likewise, incentives to re-use existing structures should be better integrated into planning legislation, and there should also be an understanding of the efficiencies of the sustainable design of building heights and floor plates when building envelopes are proposed in planning instruments.

Manly Council’s Development Control Plan (DCP) Residential Zone 2007 is the only planning instrument I have seen that contains provision encouraging the re-use of an existing structure, requiring that ‘an assessment is to be undertaken to determine the degree to which any building on the land should be retained and appropriately adapted to meet sustainable development principles’.

Heritage legislation should be expanded to ensure the possibilities for adaptive re-use of heritage items or potential heritage items are adequately explored prior to demolition being approved.

In the future, heritage professionals may be required to consider the carbon footprint of proposed repair methods and materials to keep the overall footprints low for conservation and adaptive re-use projects. In addition, heritage consultants may be required to understand more about historic building materials — such as the source of raw materials, manufacture and transport of the material — as they may become involved in measuring the embodied energy of historic structures.

While not all structures should be retained and re-used, ideally, planning, sustainability, heritage and property development models would encourage the re-use of good-quality existing structures. ‘Adapting and re-using should always be the starting point in decisions on whether to develop’ (Bevan, 2008), as adapting good-quality existing structures can achieve environmental benefits and cost savings.

There are two pieces of legislation currently being progressed by the state and federal governments that will also encourage the retrofitting of existing buildings — one to enable environmental upgrades by borrowing through Council funds and paying back through rates, and another to provide tax breaks to improve the energy efficiency of buildings. ■■

Jennifer Faddy
Associate Director – Heritage, Urbis

Adapted from The impact of 20th century rating tools and legislation on the conservation of 20th century urban fabric in NSW, Australia, published in Heritage 2010- Heritage and Sustainable Development, edited by R Amoeda, S Lira, and C Pinheiro.

Footnotes

- 1 A research project in Victoria is currently investigating how conservation of older buildings contributes to sustainable development (Judson & Iyer-Raniga, 2010).
- 2 Consider that the embodied energy contained in the materials used in the construction of the average house is equivalent to about 15 years of normal operational energy use (CSIRO, 2008), and it takes a typical medium-sized Australian CBD office building 24 years to use more energy through operating than it has embodied energy in its materials (Craig Roussac, Old Star Green Star, *Architecture Bulletin* Sep/Oct 2009).

Useful Websites

www.basix.nsw.gov.au

www.nabers.com.au

www.asset.gov.com.au/environmentguide

www.climatechange.gov.au/reporting

www.ret.gov.au/Documents/mce/energy-eff/nfee/default.html

www.pathnet.org/sp.asp?id=7985#

www.environment.gov.au/sustainability/energyefficiency/buildings/commercial/publications/pubs/disclosure-regulation.pdf

www.heritage.nsw.gov.au

Sustainability ratings tools surveyed

Name	Jurisdiction	Status	Type of development	Recognises re-use of existing structure	Comment
Green Building Council of Australia Green Star rating	National	Voluntary	Office and retail (currently), with tools in development for other building types	Yes	Points given for building re-use and re-use of materials
Building Code of Australia	National, with state variances	Compulsory	All	No	Performance targets for structure need to be achieved
National Australian Built Environment Rating System (NABERS)	National, but administered by NSW Department of Environment, Climate Change and Water (DECCW)	Voluntary, but soon to be compulsory for buildings of more than 1,000sqm, owned or occupied by NSW Government agencies	Commercial	No	Focuses on operational energy use
Nationwide House Energy Rating Scheme (NatHERS)	National	Voluntary in NSW; will become compulsory in 12 months	Residential	No	Work is underway on issues such as total greenhouse score and life cycle indicators; integrating them into the rating tool is still some years away
Building Energy Rating Scheme (BERS)	National	Voluntary	All	No	Thermal performance only; a computer program that gives ratings for use in complying with BCA
Environmental Performance Guide for Buildings (EPGB)	NSW	Mandatory for Government agencies	Commercial	No. Didn't site (sight?) documents but was advised	Government agencies are now required to incorporate the requirements of the EPGB in project delivery briefs for buildings
Building Sustainability Index (BASIX)	NSW	Mandatory for residential development with estimated cost of works to be more than \$50,000	Residential	No. Applies only to new development, or the new part of any alteration or addition	Alternative provisions apply to heritage-listed structures
Mandatory Disclosure of Energy Efficiency	National	Will be mandatory at point-of-sale from mid 2011, where the building, or any part thereof, has a net lettable area above 2,000sqm	Commercial office buildings	No, uses NABERS as rating tool	National Greenhouse and Energy Reporting
National Greenhouse and Energy Reporting System (NGER)	National	Mandatory if company is a constitutional corporation, and meets a reporting threshold for greenhouse gases or energy use or production for a reporting (financial) year	Ongoing operation	No, but mentioned in measurement guidelines	For the reporting and dissemination of information about the greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations
National Framework for Energy Efficiency (NFee)	National	A policy framework that sets targets	All	No	Focuses on enhancing performance through energy-efficient technologies
Australian Building Energy Council's (ABEC) code of practice	National	Voluntary	All	No. The objectives recognise issues of durability and life cycle costing need to become more mainstream in the industry	Representative body committed to increasing environmental performance of construction industry

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Ralph Symonds building

Wentworth Point, Homebush

The first Australian to visit Jørn Utzon at his home in Denmark, following the young architect's success in the international competition to design the Sydney Opera House, was a Sydney-based company director named Ralph Symonds. At the time, Symonds was regarded as the most inventive and progressive manufacturer of plywood in the world. Fascinated by plywood before it gained widespread usage, Symonds had become a leading authority on the material through many years of research and experimentation.

An eccentric and determined man with a penchant for invention, Symonds appealed to Utzon and he offered the architect full use of his knowledge and resources.

Symonds had begun experimenting with plywood in the 1920s, and soon established the company Panels Pty Ltd in Marrickville (Standardised Furniture Co., Marrickville, in 1924; Panels Pty Ltd in Newtown in 1933; and Ralph Symonds Pty Ltd in 1942). He designed and built the log slicers, driers and presses he required, and developed superior glues in conjunction with chemists.

In 1939, to meet the needs of the national war effort, the company switched its emphasis from the production of thinly sliced decorative veneer to ordinary plywood panels. It began producing ammunition boxes, collapsible folding boats and light pontoons for the army, and even produced decoy Kitty Hawks to forestall a Japanese raid on Darwin.¹

During the 1940s and 1950s, the company was involved in a number of important commissions, notably the 'Alumply' aluminium-coated plywood sheets used in Melbourne's Myer Music Bowl, and the large formwork sheets used in the construction of Sydney's Warragamba Dam.

Symonds viewed plywood as a structural material and conducted research into glue-laminated arch construction, finding it to be a quick, efficient and economical method of obtaining large spans with fewer joints and less material.² By 1946, his new company, Ralph Symonds Ltd, had commenced production of laminated timber arches with spans as great as 30 metres, increasing to 80 metres by 1957. By this stage the company had outgrown the available

factory space at its various Sydney locations, and Symonds decided to purchase the leasehold on 26 acres at Wentworth Point on which to build a new factory for the manufacture of plywood panels and laminated timber products. The new building was designed and built by Ralph Symonds Ltd, and was completed in 18 months at a cost of more than £1 million. The three-bay factory was 350 metres long and 160 metres wide, and had an enclosed floor area of over 18 acres.

When construction was completed it was the largest single industrial building in the Southern Hemisphere, and remains the largest timber building ever constructed in Australia.³

The design of the Homebush factory was the culmination of ideas and experimentation for Ralph Symonds and represents the zenith of the cycle of Australian glue-laminated arch construction.⁴ A concrete slab was poured for the entire building and became the work platform for the construction of the laminated timber arches, which were erected using small

mobile cranes. The roof was supported on a series of three-pin arch frames for each bay at 7.62 metre (25 foot) centres, each spanning over 43 metres. Each main arch consisted of 30 laminates of New Zealand radiata pine glued to form a section measuring approximately 620 x 155 millimetres. The factory was a combination of shallow pointed arch and sawtooth type construction, with the space between the upper arch frame and lower suspended beam at every bay glazed to admit natural light to the interiors.

With his new factory, Symonds was capable of producing 15 x 2.7 metre plywood sheets at a time when the industry standard was still 2.4 x 1.2 metres, and his early visit to Utzon had secured him a major role in the

"...the Homebush factory was the culmination of ideas and experimentation for Ralph Symonds and represents the zenith of the cycle of Australian glue-laminated arch construction."

Opera House project. As the author Philip Drew noted, Utzon's auditorium interiors were predicated on the use of Symonds's plywood and manufacturing technology.⁵

In a 1996 letter to Symonds's son, Utzon wrote: "Your father's enthusiasm was enormously encouraging and inspiring, and gave me real confidence in the great task at hand...Experiments with models and mock-ups in his factory gave me 'a look into paradise'. We actually reached a stage where my ideas and intentions for the interiors could be realised... No other plywood factory in the world was able to produce these difficult elements with the quality I desired. It was a miracle!"⁶

Although Symonds drowned in 1961, the collaboration between Utzon and the Homebush factory continued. By 1965 the factory had been given the required drawings and its 450 staff was ready to produce full-sized mock-ups of the Opera House's plywood mullions and auditorium beams, as well as begin producing the plywood corridor panels. The absence of approval for this work later became a key factor in the dismissal of Utzon from the Opera House project, and represented the end of a series of truly innovative plywood solutions for the building.

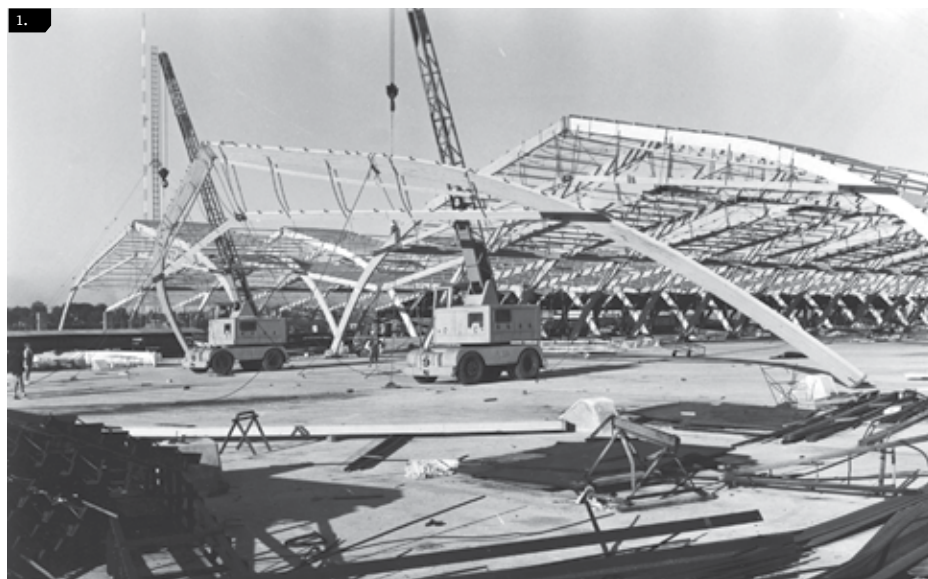
The planned plywood interiors for the Opera House may never have materialised, yet Symonds's plywood factory remained in operation, and supplied the aluminium-faced external cladding of the Australian National Maritime Museum in Darling Harbour (1988). However, in 1992, after more than 30 years at the site, Ralph Symonds Ltd went into administration, and the cathedral-like

interiors of the Homebush Bay factory on Bennelong Road were lost, as bays were removed to create a roadway and the building was divided internally into a number of warehouse units. Despite the encroachment of developers on the headland at Homebush Bay in recent years, the factory still stands; a forgotten and now vulnerable tribute to the genius of its designer and the lost opportunities of the Sydney Opera House. ■■

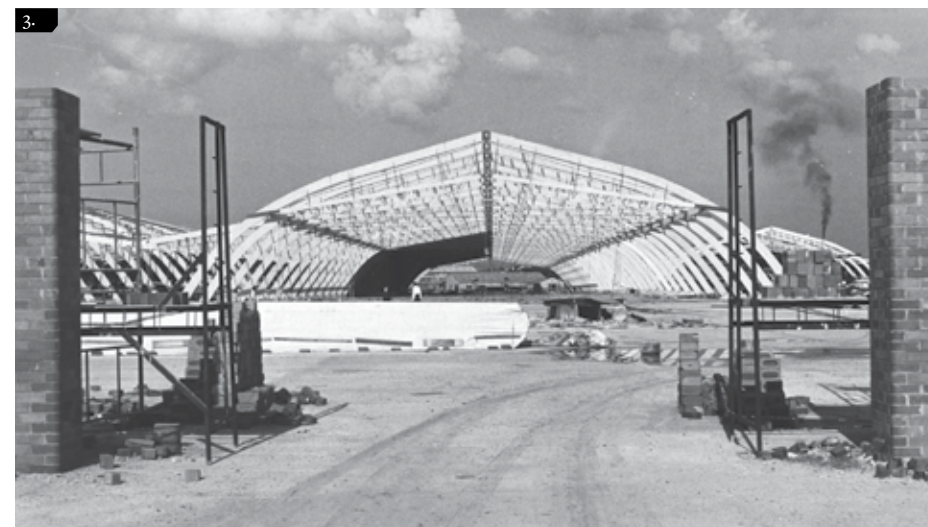
David Burdon works at the NSW Government Architect's Office.

Footnotes

- ¹ **Hochroth, Yvonne**, *A Company History of Ralph Symonds Australia Limited*, July 1987
- ² *Timber Building in Australia*: Foundry Building, Alexandria, NSW
- ³ **Timber Research Unit of the Department of Architecture at the University of Tasmania**, *Timber Building in Australia*, http://www.timberbuilding.arch.utas.edu.au/projects/view_projectinfo.asp?projID=192
- ⁴ *Timber Building in Australia*: Factory Building, Homebush, NSW
- ⁵ **Drew, Philip**, *The Masterpiece – Jørn Utzon: A Secret Life*, Hardie Grant Books, 2001
- ⁶ **Duek-Cohen, Elias**, *Utzon and the Sydney Opera House*, Morgan Publications, 1967 (1998 limited edition reprint with addendum)



1. The 43 metre span laminated timber arches being erected with mobile cranes. 2. Aerial view of the newly constructed factory at Bennelong Road, Homebush Bay. **Photo:** Ern McQuillan, courtesy of Timber Development Association (NSW). 3. The central arcade prior to cladding. **Photos:** Mitchell Library, State Library of New South Wales. Images originally published in *Timber Building in Australia*, by the Timber Research Unit of the Department of Architecture at the University of Tasmania, http://www.timberbuilding.arch.utas.edu.au/projects/view_projectinfo.asp?projID=192.



Vernacular elegance

From 1890 until World War I, buildings by the NSW Government Architect, Walter Liberty Vernon, adapted elements from the Georgian style in response to climate.

To design public buildings that were suited to the climate of inland New South Wales, the Government Architect Walter Liberty Vernon employed his detailed knowledge of colonial Georgian buildings erected during the state's early years as a penal colony.

Macquarie-era buildings with wide verandahs, such as Lieutenant John Watts's Lancer Barracks at Parramatta 1818–1820, influenced designs by the NSW Government Architect's Branch (GAB) for police stations, land board offices, hospitals and asylum wards. Philip Cox and Clive Lucas credit Watts with 'the introduction of verandahed public buildings to Australia'.¹ Like Governor Macquarie, Watts had served in the West Indies and was familiar with tropical barracks, quarters and hospitals that employed wide verandahs.

In contrast to the Rum Hospital in Macquarie Street, 'a grand if somewhat crudely executed scheme which predates the arrival of trained architects in Australia', Watts used elegant chamfered timber posts for the verandah of the Lancer Barracks.² The GAB's design for the Western Land Board office at Bourke, 1898–99, demonstrates a detailed understanding of Colonial architecture, particularly the use of cross ventilation, a raised ground floor and wide verandahs to keep the interior cool.

In 1901 Vernon outlined his design intention for the country land board offices; his aim was to provide 'good lighting for rooms and shade, and coolness for the hot climate'.³

Many of the designs by the NSW GAB for suburban and country New South Wales between 1890 and World War I are characterised by the use of a verandah, rather than the colonnade or arcade favoured by Vernon's predecessor, the colonial architect James Barnet, as can be seen in the design of the courthouse at Batemans Bay (1905). Another form used by the GAB that has Colonial origins was the placement of the residential quarters, designed to catch the breeze, over a solid ground floor, as can be seen in the additions to Wellington Post Office (1904).

Cross ventilation, raised floors and wide verandahs were also commonly used in the design of hospital wards. Architectural historians have been unsure where to place the timber ward pavilions designed by the GAB for the Rookwood Asylum at Lidcombe in the mid 1890s. Richard Apperly believed that 'the elegant ward pavilions display a clearly anachronistic use of earlier forms and materials: a low, wide-spreading homestead with a hipped roof, extensive structural and decorative use of timber in place of brick, and the reversion to corrugated iron'.⁴

The use of the verandah is not an anachronism; rather it is evidence of Vernon's desire to create an appropriate Australian architecture using colonial precedents that suited the climate of New South Wales.

This use of Colonial precedents in public architecture was not limited to New South Wales, it is also found in Western Australia and Queensland.

Following his return to Brisbane from London in the mid 1890s, Robin Dods began to employ Colonial forms and planning. Dods's winning design for the Lady Lamington Nurses' Home (1897), and his later naturally ventilated hospital wards, are a remarkable reinterpretation of the standard Colonial Georgian hospital or barrack pavilion designed by the Royal Engineers. Robin Boyd later described Dods's designs that drew on



1. Bourke Courthouse by Walter Liberty Vernon; in its day, the most suitable design of the NSW Government Architect to the heat of inland New South Wales. **Photo:** Department of Public Works Annual report, June 1900.



2. Wagga Wagga Courthouse (1902) by NSW Government Architect Walter Liberty Vernon. Breezeway with the courtyard beyond. **Photo:** Noni Boyd. 3. Bateman's Bay (former) Courthouse (1905) by NSW Government Architect Walter Liberty Vernon. **Photo:** Jean Rice, photographed for the Australian Institute of Architects during a survey of country New South Wales architecture in the early 1980s. 4. Wellington Post Office additions (1904). The influence of this substantial two-storey addition to the front of the existing post office appears to be Colonial architecture. The use of a solid ground floor with more open upper floor could be found in the Caribbean and was a form used by Francis Greenway at the now demolished Springfield in Potts Point. **Photo:** Noni Boyd.



“...elegant ward pavilions display a clearly anachronistic use of earlier forms and materials: a low, wide-spreading homestead with a hipped roof, extensive structural and decorative use of timber in place of brick, and the reversion to corrugated iron.”

Australia's colonial architecture as 'a stylistic elegance within the framework of the vernacular'.⁵ Hall and Dods's naturally ventilated hospital wards were known internationally; their Brisbane hospital wards were praised by Alfred Saxon Snell in *Building News* in 1915, and mentioned in the wartime hospital planning instructions issued by the English War Office.⁶

The design by the NSW Government Architect that is most suited to the heat of inland New South Wales is the substantial Bourke Courthouse, where the use of a fountain court first appears. Designed shortly after Vernon's return from London in 1897, Bourke Courthouse is a complex freestyle composition that combines William Richard Lethaby's teachings and motifs drawn from Charles Voysey's domestic work, with the traditional cooling device from Islamic architecture: the fountain court.

Bourke Courthouse is very different in design to the earlier land board offices in its choice of materials, and in the way the climate is dealt with. Vernon believed the design was a somewhat new departure in planning in response to the great heat of the Bourke climate. An internal and an open courtyard is provided for shade, while the corridors surrounding the courtroom itself on all four sides are carried uninterruptedly

across the building, thus giving through ventilation in all directions.⁷

The standard arrangement of a courtroom flanked by corridors and offices, which had been utilised by colonial architects since Mortimer Lewis, has been altered by the addition of a courtyard. The fourth side of the court is enclosed by a breezeway set above street level, a device also used at Wagga Wagga Courthouse (1902). In the Bourke Courthouse design there is no overtly symbolic ornament signalling the building as a courthouse. Rather, the aesthetic purity of contemporary London work by leading designers from the Arts and Crafts Movement can be seen. Lethaby's idea that the symbolism should be understandable to all is evident: the astragals are clipped into the form of a wave; an appropriate motif of water for the downpipe.

In the design of public buildings from the mid 1890s until World War I, the concern was not with architectural style, rather it was with designing public buildings suited to the Australian climate, with carefully considered day lighting, ventilation and sun shading.

Arriving in August 1918, Leslie Wilkinson, the then new professor of architecture at the University of Sydney, favoured the use of Mediterranean forms, which he believed to be an appropriate response to Australia's climate. The verandah was abandoned in favour of the arcade or colonnade, and the buildings that had

once formed part of the Grand Tour were now back on the architectural itinerary. The lessons learnt from Colonial Georgian institutional buildings inherited by the state of New South Wales public buildings were soon forgotten. ■■

Noni Boyd, Heritage Consultant

Footnotes

- 1 Philip Cox and Clive Lucas, *Australian Colonial Architecture*, Landsdowne Editions, 1978, p.140 and plate 302
- 2 Cox and Lucas, *Australian Colonial Architecture*, caption to plate 290, p.137
- 3 Vernon, *Government Architect's Report in NSW Public Works Department*, Annual Report for the year ending June 1901
- 4 Richard Apperly, *A Controlled Near Chaos*, NSW, in Howells, *Towards the Dawn, Federation Architecture in Australia 1890-1915*, caption to fig 29, p.38
- 5 Lund, *Robin Dods 1868-1920 in Tanner Architects of Australia*, p.89
- 6 *Building News*, 17 November 1915
- 7 NSW Public Works Department, *Annual Report for the year ending June 1900*, p.57

Time line

Climate-responsive innovations: key New South Wales examples, 1793–1981

The mitigation of direct, harsh sunlight has always influenced architectural form in Australia, whether in the use of verandahs, loggias and screens, the planning of rooms, or window design, that takes advantage of light. While not an exhaustive list, the projects in tris timeline have historic significance either at a national, state or local level. Edited by *Glenn Harper*, *Diane Jones* and *Anne Warr*.



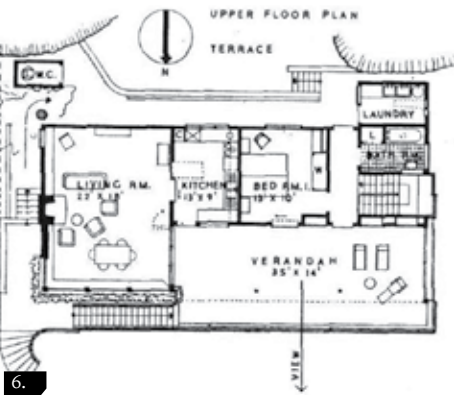
1886
Bourke Courthouse
Architect: NSW Government Architect W. L. Vernon

A complex composition of pavilions linked by covered walkways enclosing a courtyard with fountain; perfectly suited to the hot, dry climate of Bourke.



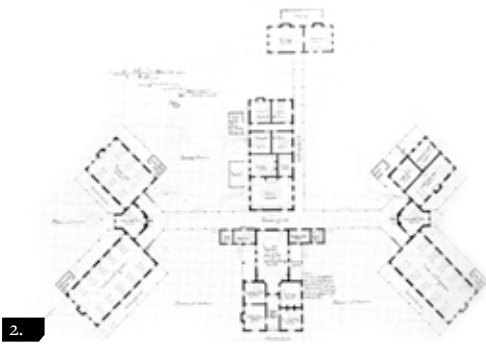
1793–1834
Elizabeth Farm, Rosehill
Listed: State Heritage Register; Parramatta LEP

Between 1793 and 1834, Elizabeth Farm evolved from an 18th century English vernacular cottage with no verandahs into the archetypal Australian homestead. Its transformation to meet the extremes of the Australian climate included French doors protected by shutters opening on to verandahs facing north and east.



1938
Collins House, Palm Beach
Architect: Arthur Baldwinson
Listed: Pittwater LEP; Heritage Register (Australian Institute of Architects)

The floor plan above shows the living rooms of the Collins family weekender facing north onto a deep balcony/verandah. The verandah not only shaded the interior, but provided access between all upper-level rooms. The verandah functioned as the traditional social heart of the house while taking expression from the new modernist aesthetic.



1878
Armidale and New England Hospital (competition-winning scheme)
Architect: John Horbury Hunt

Hunt’s adaptation of Florence Nightingale’s design principles resulted in a hospital of multiple pavilions linked by covered walkways. Each single-storey Romanesque-style building contained four wards grouped around a central treatment area and nurses quarters. Pyramidal roof lanterns and fireplaces offered additional ventilation and heating to each ward, while sanitary towers expressed as separate buildings were located at the ends of the wards.



1941
King George V Memorial Hospital, Camperdown
Architect: Stephenson, Meldrum and Turner
Award: Sulman Medal, 1941. Listed: Sydney LEP

The six-storey U-shaped hospital for mothers and babies featured wide cantilevered balconies accessed directly by patients from the wards. The courtyard entry and simple plan clearly distinguished between circulation, wards and service areas. With the balconies expressed externally as a series of strong horizontal bands, the building exuded functionality and clean, healthy living.



1889
Bishops Lodge, Hay
Architect: John Sulman
Listed: State Heritage Register

To accommodate the movement of the clay soils and extreme temperatures of Hay, recently arrived architect John Sulman designed Bishops Lodge with corrugated iron walls externally, ripple iron internally and the cavity filled with sawdust as a ‘non-conductor of heat and cold’. In 1889, Bishop Linton wrote: “the home surpasses all our utmost expectations for comfort, convenience and for beauty...the thermometer has never exceeded 90 degrees [Fahrenheit] within the house”.



1945
Poyntzfield, Killara
Architect: Sydney Ancher
Award: Sulman Medal, 1945
Listed: Ku-Ring-Gai LEP; Heritage Register (Australian Institute of Architects)

The use of open planning, pergolas and terraces to shade the floor to ceiling glass, the melding of indoor/outdoor spaces, and the retention of all mature trees were innovative at the time, and earned Ancher the Sulman Medal in 1945.



1895
Dubbo Land Board Office
Government Architect W.L. Vernon

This two-storey timber-framed and corrugated iron building incorporated many environmental features, such as high ceilings, gable end louvres, window shutters and roof ventilators. The H plan with indented verandahs allowed the low-level south-facing vents to provide cooling cross ventilation.



1945
Homes in the Sun: The Past, Present and Future of Australian Housing
Author: Walter Bunning

An official report by Walter Bunning for the Commonwealth Housing Commission. The published report contained recommended designs for Australian postwar housing, including a tropical house, homes designed around a small park, and a series of solar house designs, one of which was located adjacent to the St Marys Munitions Factory.

1. Major Grose probably built the first verandah on to his ‘barrack’ house in George Street in 1792, modelled on those he’d seen while on duty in North America. Other influences on early Australian design came via Jamaica, South Africa and India. **Photo:** Mitchell Library, State Library of NSW; call number PXA 182. 2. Horbury Hunt’s original plan. 3. **Photo:** courtesy, Peter Freeman. 4. This innovative building was one in a range of new country land board offices Vernon designed in the late 19th century that utilised core environmental design principles for hot dry locations: light, shade and cross ventilation. **Photo:** courtesy NSW Department of Lands. 5. W.L. Vernon used his detailed knowledge of colonial Georgian buildings in their response to climate when designing new public buildings for country NSW. 6. Arthur Baldwinson combined the new modernist aesthetic with an appreciation of the site and local environmental conditions in a search of a regional modernism. **Floorplan:** from George Beiers’, Houses of Australia: A Survey of Domestic Architecture, 1948. 7. Stephenson and his head designer Arthur Baldwinson, were influenced by northern European sanatoria, particularly the work of Alvar Aalto in Finland. Patient balconies were nothing new in colonial hospital planning, having been in use since the Rum Hospital. **Photo:** Russell Roberts. 8. Ancher’s own house demonstrated his adaptation of modernist principles to an Australian bushland site. Colour (ie shades of white) was used to enhance the visual continuity of interior space. **Photo:** Max Dupain. 9. Sunshine and Shade in Australia was published three years after Homes in the Sun, and elucidated principles for calculating the extent and direction of sunlight and shadows on buildings. Together, the two booklets were essential design tools for postwar Australian architects. 10. Their own house demonstrated the Lucas’s environmental view that one ‘should be modifying ourselves rather than our environment’. **Photo:** David Moore.



1957
Lucas House, Castlecrag
Architect: Bill and Ruth Lucas
Listed: Heritage Register (Australian Institute of Architects)

A structural frame poised off the ground, a doughnut plan with walls of glass louvres, wide cantilevered roof overhangs and adjoining tree canopies provide shade, shelter and natural cooling.



11.

> 1986

Dee Why Public Library

Architect: Edwards Madigan Torzillo & Partners

Award: Sulman Medal, 1966

Listed: Warringah LEP.

Sited on a hill overlooking Dee Why, the sculptural exterior form of this small municipal library is functionally derived from its well-lit interior. A series of skylights and low-level windows allow a controlled level of natural light into the library's split-level open plan.



12.

1974–1980

Marie Short House, Kempsey

Architect: Glenn Murcutt.

Listed: Heritage Register (Australian Institute of Architects)

Glenn Murcutt rethinks the rural farmstead in the creation of a modern solar holiday house. The sheltering roof is perforated and integrated with louvre sunscreens, with an aerofoil ridge cap for ventilation. The wall has become a perforated screen to control the sun and breeze.



13.

1976

King George Tower, Sydney

Architect: John Andrews International

Remodelled by Lend Lease in the 1990s

Award: Sulman Medal, 1983 (shared)

Listed: Heritage Register (Australian Institute of Architects)

Responding to the inner-city corner site, John Andrews developed a triangular floor plan that allowed greater penetration of sun and light inside while contributing to the surrounding urban character. Full-height windows were originally screened by translucent, polycarbonate panels on a stainless steel frame, angled on different faces of the building in accordance with the angle of the sun. The vitality of this building was diminished recently when these panels, 'sunglasses', were removed as part of a refurbishment, and replaced with a more conventional curtain wall glazing system.



14.

1981

Solar G2 House, Pennant Hills

Architect: Gareth Cole and Penny Rosier

Awards: RAIA Merit Award, Section 2 — Merchant Housing, 1982

This solar hybrid house incorporates passive solar design in its orientation, and integrates a greenhouse, ducts, fans and a rock store for the collection, movement and storing of heat and drawing of cooled air through the building.



15.

1982 – 1988

Grosvenor Place, Sydney

Architect: Harry Seidler and Associates.

Awards: Moar National Prize, 1989; Sulman Medal, 1991

Listed: Heritage Register (Australian Institute of Architects)

A quadrant plan forms the basis for this 45-storey office tower that maximises sweeping views within a column-free office space. Environmental control is an inherent part of the design with the provision of external angled sun hoods, solar panels for hot water heating and power generation for night-time use. Energy is stored in basement ice banks for use during daytime peak demand. ■■

11. Dee Why Library marked the beginning of a new direction for Col Madigan, with his work becoming more sculptural as it admitted (and restricted) sunlight. **Photo:** David Moore. 12. While incorporating Miesian design references, the farmhouse acknowledges Australian rural iconography in an attempt to provide a response to climate. **Photo:** Max Dupain. 13. Many of Andrews' projects explored and developed innovative sun-shading devices; in this case, the clipped-on external plastic sunhood (described as sunglasses). **Photo:** Max Dupain. 14. The RAIA Awards jury noted at the time that there was a 'forceful commitment to solar technology as a major contributor to architectural design'. **Photo:** Max Dupain. 15. According to Metcalf in *Architecture in Transition*, this building dates from a period when office towers were usually glass curtain walls without any sun protection. The use of external sun control on a modern high-rise building can in fact be traced to Costa's, Niemeyer's and Le Corbusier's 1930s Ministry of Education and Health building in Rio de Janeiro, which Seidler saw when he worked briefly for Niemeyer in Brazil. **Photo:** Max Dupain.



KEVIN JAMES RICE OAM [1932-2011]



The refurbishment of Sydney's Queen Victoria Building was an early Rice Daubney commission. **Photo:** courtesy, Rice Daubney. **Portrait (top):** courtesy, Sydney Morning Herald.

Kevin Rice died of cancer on 10 January 2011, at the Wolper Hospice in Woollahra. Kevin was born in Waverley in 1932. He graduated in architecture from the University of New South Wales in 1955 and began his career travelling extensively overseas and working in Norway and London, UK.

I first met Kevin in 1974, having returned from overseas travel and work, when he convinced me to join Fombertaux Rice Hanley.

Kevin had met and married his first wife Teresa in London, where they had their first son, Simon, before returning to Sydney in 1960. Kevin then joined emerging force Civil & Civic where he was responsible for researching new construction techniques and approaches to development. This time had a strong impact on Kevin's approach to practice, establishing his methodology of research, his challenging of traditional approaches, and his belief that the best outcomes evolve from the integration of architectural and construction disciplines.

Kevin left Civil & Civic in the early 1960s to join Oser Fombertaux & Associates, later becoming the Senior Partner of Fombertaux Rice Hanley, a major Sydney practice in its day. In 1975, he left the firm and invited me to establish Rice Daubney with him.

We started the practice in 1976 with two employees and not much work. Fortunately, with Kevin's wide network and business reputation, we grew and prospered. By the mid 1980s we were one of the largest practices in Sydney, with over 200 employees and many significant projects underway, such as the Queen Victoria Building, Zenith Centre (Chatswood), HSBC Tower and Sacred Heart Hospice. It was a great partnership and I learnt much from Kevin, particularly his big-picture focus and discipline.

Kevin had a strong sense of what was right, which permeated all his thoughts and actions. Some would say he was difficult and demanding, but he had a great capacity to get on with things and give those around him an opportunity to develop their ideas.

Beyond his own work in practice, Kevin contributed greatly to the architectural profession and property industry. He gained his MBA in 1976 from the University of New South Wales where he lectured in design for five years. He also lectured in Management for five years at the University of Sydney.

He was President of the NSW Chapter of the Australian Institute of Architects from 1986 to 1988: a time of great change for the Institute, during which Kevin was instrumental

in finalising the sale of the Chapter's North Sydney premises and purchase of Tusculum in Potts Point, which remains the Chapter office today. His business acumen was of great value in negotiating this transition.

Kevin was also active in other industry bodies: as architectural consultant to the Building Owners and Managers Association (now the Property Council of Australia); as committee chair of CSIRO; as a member of the St Vincents' Hospital Property Board; as a member of the Heritage Council and as adjunct professor at the University of Sydney.

His contributions to the profession were recognised in 1987 when he was made a Life Fellow of the Australian Institute of Architects, and in 2004, when he was awarded a Medal of the Order of Australia (OAM) for services to architecture, a rare honour in our profession.

In 1988, after a long battle with cancer, his wife Teresa died. This had an enormous impact on Kevin and he retired from Rice Daubney in 1990. However, true to his 'life is always a challenge' approach, he rebounded, marrying Jillian in 1991, and taking on myriad consulting roles across the property industry. He thrived in this advisory or chair capacity, and it was a joy to watch him listen, enquire and, with great eloquence, bring into focus all the issues at hand.

Of course, there was more to Kevin than architecture and property. He travelled extensively and sailing was his passion. He raced his yacht *Passepartout* with the Royal Sydney Yacht Squadron and Sydney Amateur Sailing Club for over 20 years and amassed many stories of wins and near misses. He was a master on the ski slopes and spent most winters at Thredbo or Perisher. In later years, he focused on art and exhibited some of his work in 2008–2010.

Kevin had enormous pride and passion for his family: his sons Simon, Dominic, Crispin and Jeremy, his stepchildren Campbell and Justine and his 12 grandchildren. His commitment to them and his second wife Jillian dominated the past 15–20 years.

More than just a successful architect, Kevin was a strategist, an adviser to individuals and large organisations, a mentor and a friend to many. Rice Daubney owes much to Kevin for his guidance and wisdom in its early years and the legacy he has left our profession. ■■

John Daubney

Managing Director, Rice Daubney



HUGH FRASER
[1946-2011]

Those who knew Hugh Fraser will be saddened to hear of his sudden and unexpected death on 30 December 2010. Hugh was a champion of architectural conservation, particularly architecture of the Federation era.

After graduation from Sydney University in 1969, Hugh spent nine years in practice in Sydney, during which time he was project architect for the National Bank premises at 249 Pitt Street, Sydney, which won a Merit Award in 1977 from the Australian Institute of Architects.

In April 1978, with the establishment of the Heritage Council of NSW, he was appointed as a specialist heritage architect in the Heritage Branch of the NSW Department of Planning. In an environment where 'development' ruled, Hugh's mission was to have our architectural heritage, in its various forms, recognised and protected. These were early days in the NSW Government's intervention to conserve cultural heritage, and Hugh was one of those working hard to get officials, and the general public, to see beyond the wear and grime of age, and appreciate the built heritage around them.

Hugh was not only an academic specialist, but had practical skills and was able to negotiate with developers and others to find solutions to difficult conservation problems. An example is Durham Hall in Surry Hills, a large two-storey Georgian house built in 1835. By 1980 it had been severely modified and was totally unrecognisable from the outside. It was earmarked for demolition and redevelopment as high-rise apartments, but Hugh's detective work determined that, within the mess, original fabric remained with sufficient architectural evidence for its restoration.

It took arduous negotiations and some massaging of the development controls, but he steered the developer into an alternative scheme that gave sufficient new low-rise apartments at the rear, on the condition of restoring Durham Hall. Today, this fine Georgian building is the headquarters of the Royal College of Pathologists of Australasia, but it would no longer exist were it not for Hugh's skill and persistence.

There are many such examples of Hugh's work, and he was especially proud of his part in conserving the heritage qualities of Macquarie Place in Sydney's CBD when it was threatened by major developments, and of his early work on the conservation of the Queen Victoria Building.

With his special interest in Federation architecture, Hugh authored the book *The*

Federation House: Australia's Own Style (1986, Landsdowne Press) and was the driving force behind the Heritage Council publication *Getting the Details Right: Restoring Australian Houses 1890s-1920s*. He was collecting material, prior to his death, for a new book on the importance of the urban streetscape and relating new buildings to the existing streetscape sympathetically.

Hugh presented many Heritage Council seminars for local government (particularly town planners and building inspectors) on conservation issues — especially relating to Federation architecture — at a time when this style was not widely considered worthy of conservation. Attitudes have since changed, and Hugh's passionate advocacy played a crucial role in this.

Hugh established his own architectural practice in 1988. Much of his work focused on Sydney's North Shore, including the Federation and Californian Bungalow heritage of Mosman. He was heritage adviser to Mosman Council for a time, and subsequently carried out commissions involving the conservation of heritage buildings, design of infill development in heritage precincts, and adaptive re-use projects such as the Mosman Art Gallery & Community Centre, re-using the Gothic and Romanesque-style former church and hall. Deeply involved in community affairs, he was chair of his local precinct committee for nearly 30 years.

Hugh took his work very seriously and pursued his strong beliefs with measured persistence, integrity and extraordinary tenacity. He was a consummate professional who left his mark on our built environment. He is survived by his wife Christine who shared his passion for conservation and who worked for many years as his practice manager. ■■

Peter Moffitt FRAIA

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