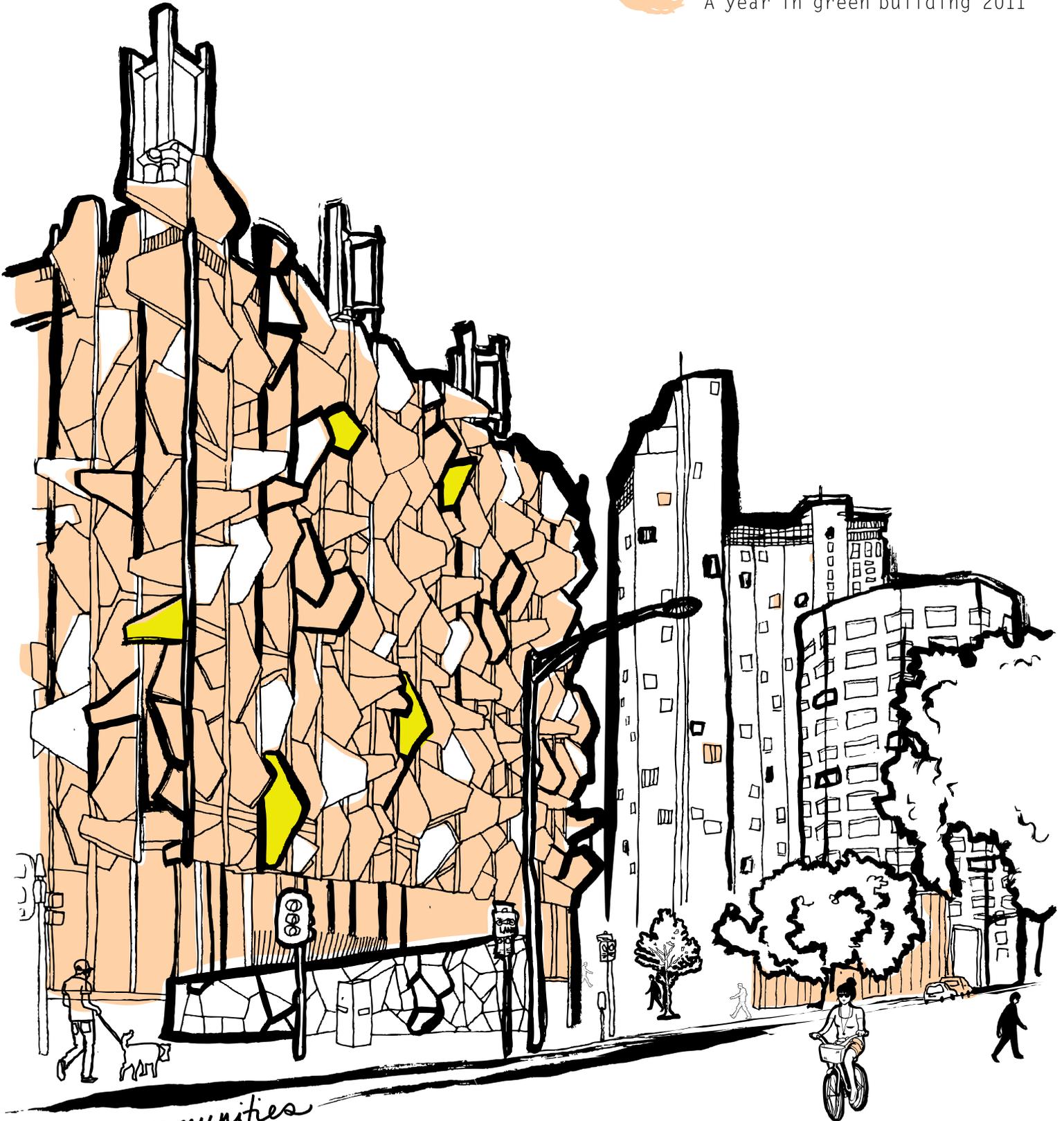


evolution

A year in green building 2011



Communities

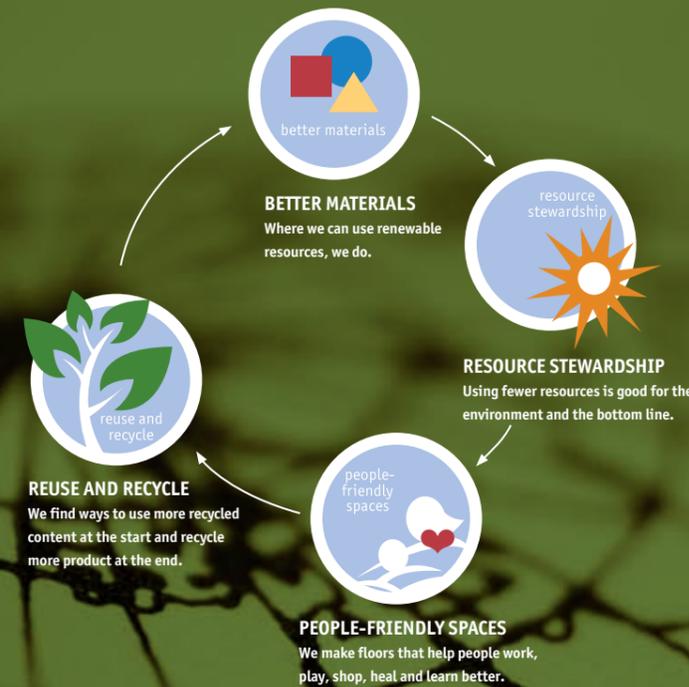
Sustainability: an everyday practice, not just an idea.

Our approach to sustainability is a Balanced Choice. It's a practice that begins with the conviction that everything is interconnected and that every person, project and environment is different and requires different choices. The raw materials that go in affect the way they can be reclaimed at the end. Every decision has an impact down the road – on our customers, their environment and their budget. Tarkett's Balanced Choice offers our customers floors that work better.

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- Being the first to remove asbestos fillers in resilient flooring
- Continually developing new sustainable flooring materials
- Gaining industry certifications to maximise Green Star points and simplify specification approvals

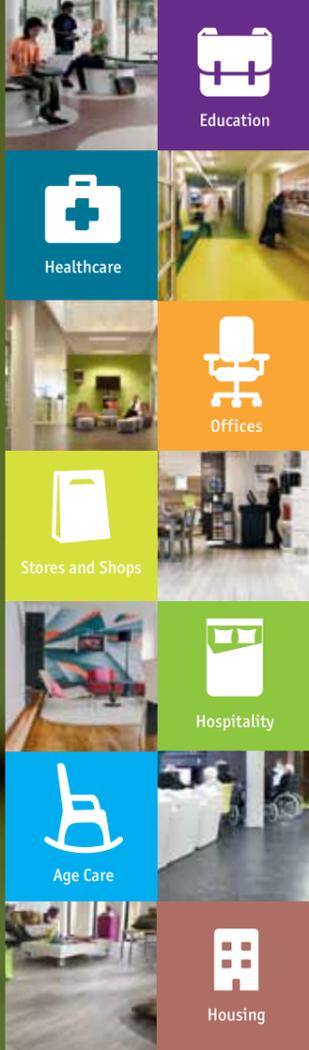


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COVER Illustration by Rosa Agostino

Pixel, 6 Star Green Star – Office Design v3
This Melbourne building received the highest
ever Green Star score to date of 105.

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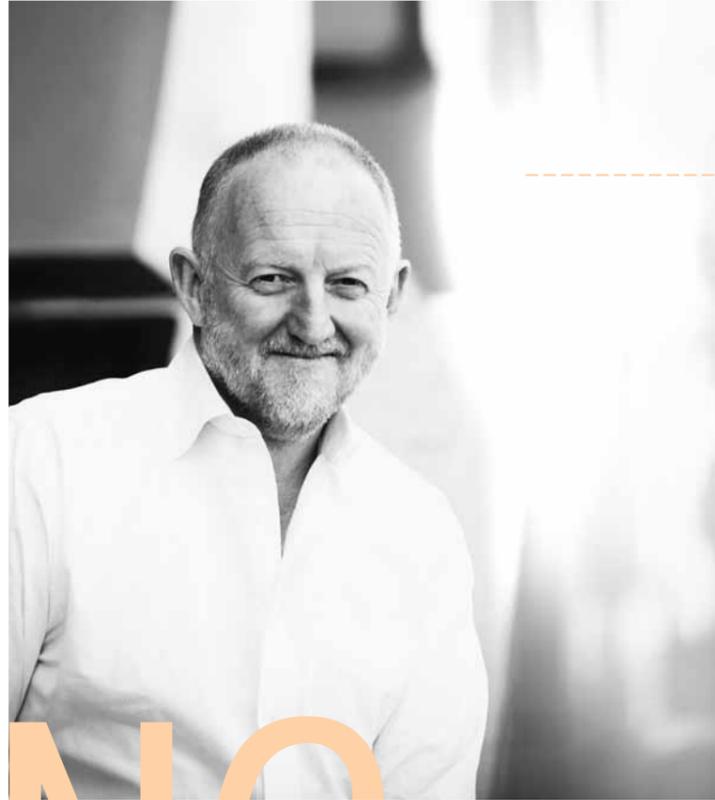
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WHAT WE'RE SEEING TODAY IS EXPONENTIAL GROWTH IN THE NUMBER OF GREEN STAR PROJECT TEAMS LOOKING FOR INNOVATIVE WAYS TO SOLVE PROBLEMS.

BEYOND THE TIPPING POINT

Every now and then, a design, idea or technological breakthrough comes along that is so profound and powerful that it changes the world. The printing press, the light bulb, the automobile, the personal computer. It doesn't happen often, but when it does, the world is changed forever.

The first Otis passenger lift, installed at 488 Broadway in New York City in 1857, sent buildings skyward. Likewise, the first modern air conditioner invented by Carrier in 1902, led to buildings with large floor plates. Both of these innovations irrevocably changed the built environment's form. But that doesn't mean that all innovations need to be as revolutionary as manned flight or the mobile phone.

Many of the most extraordinary ideas are simple and come from ordinary people. The father of the World Wide Web, Tim Berners-Lee, for instance, has argued that the 'eureka moment' is a myth. "I think our creativity is subconscious," he said in an interview recently.

"It happens slowly... it's not that you are really clever and you just thought it up, it's because you've been washing dishes, skiing, talking to people, reading up, concentrating on different aspects of the problem. My hunch is that Archimedes spent a week thinking about the displacement of water, then eventually it came to him. I don't believe it came to him in his bath. It's a nice story."

Our industry is doing exactly what Berners-Lee describes. We are collaborating, conversing and concentrating on the challenges of sustainable building – and this is enabling incremental innovation.

In this way, innovation is a process, rather than a singular 'eureka' moment. It is the ability to see change and adaptation as opportunities – not as threats.

Looking back five years, could you predict what you'd be doing today? And where you'll be in five years time? Five years ago, the Green Building Council of Australia had

only just certified its first Green Star-rated building – 8 Brindabella Circuit at the Canberra Airport. Five years ago there was no Green Star rating tools for schools or hospitals, shopping centres or industrial sheds. Five years ago, Green Star was so innovative that project teams were still grappling with the challenges of achieving a 5 Star – Office Design rating.

Today, we are seeing more and more 6 Star Green Star certifications across a range of building types. While in 2005 we saw very few projects awarded Green Star points for innovation, today projects regularly include claims for innovation points. In fact, a project in 2010 had thirty different examples of initiatives from which to choose for their innovation submission.

In a few short years we've moved from recognising that buildings are depleting our natural resources, to looking at how we construct carbon neutral, energy-, ecology- and water-positive buildings. From being part of the problem, buildings have become a big part of the solution.

What we're seeing today is exponential growth in the number of Green Star project teams looking for innovative ways to solve problems. They are truly pushing the boundaries and challenging the GBCA to keep up with best practice and beyond. Above all, the case studies produced and the sharing of information is helping the industry work together towards better, more cost-effective sustainability solutions.

The author Malcolm Gladwell calls these 'tipping points' – "the levels at which the momentum for change becomes unstoppable."

Our industry is reaching this tipping point – we are poised at the moment of critical mass, the boiling point at which "ideas and products and messages and behaviours spread like viruses."

If these ideas, these innovations, are about to spread like viruses, I encourage everyone in our industry to ask themselves: what can I do within my organisation to move beyond compliance and foster a culture of innovation? ●



FROM
BEST
PRACTICE
TO
**NORMAL
PRACTICE**

WHEN THE GREEN BUILDING COUNCIL OF AUSTRALIA WAS ESTABLISHED IN 2002, OUR MISSION WAS CLEAR: TO DEVELOP A SUSTAINABLE PROPERTY INDUSTRY FOR AUSTRALIA AND DRIVE THE ADOPTION OF GREEN BUILDING PRACTICES THROUGH MARKET-BASED SOLUTIONS.

For nine years now, the presence of Green Star in the market has driven the shift to 'best practice' sustainability standards for buildings, and generated strong demand for new green products, services and technologies.

For instance, just a few short years ago green materials such as low VOC paint, lower embodied energy concrete and recycled timber were expensive and hard to come by. Likewise, practices such as recycling construction waste were at best uncommon, at worst unheard of.

Today, these products and practices are more readily available and illustrate how Green Star has made a lasting impact on industry. These are just a few of the dozens of examples of how best practice five years ago has become the norm today.

The term 'best practice' is widely accepted as a superior method or innovation that contributes to improved performance – and is usually recognised as 'best' by peers. In our industry, delivering the 'best' – or the 'first', 'largest' or 'newest' – green building on the block has been a preoccupation for some time. But while we commend every project team that has achieved a 'best' or a 'first', the challenge for our industry today is to ensure that 'best practice' becomes 'normal practice'.

Of course, laggards will always exist, as will vanguards. The vanguards have long been members of the GBCA and have conceived and created some of Australia's most magnificent green building icons. It is the GBCA's role to ensure that the change initiated by these vanguards is driven into the mainstream.

In July 2010, the GBCA released its 'green building policy agenda' for 2010-2013, which outlines the five priorities we believe will place Australia on a clear, long-term pathway to sustainability.

THE GBCA'S FIVE GREEN BUILDING PRIORITIES FOR 2010-2013 ARE:

Provide visionary government leadership

1 All levels of government must demonstrate leadership by achieving environmental ratings for every building they own, occupy or develop. The GBCA calls on the federal government to work closely with industry to establish a clear, long-term pathway to sustainability, provide financial and non-financial incentives for best practice, and deliver continual increases in the Building Code of Australia.

Retrofit and improve existing buildings

2 Retrofitting existing stock is the 'new frontier' for buildings. We will work closely with government to establish an existing building strategy, as well as a range of incentives which will future-proof our existing buildings, address tenant expectations and create jobs growth without needing to create additional commercial stock.

Green education and healthcare facilities

3 The GBCA wants to see all levels of government reference Green Star in education and healthcare guidelines, with certification achieved for at least 50 per cent of projects. In addition, we advocate that dedicated roundtables be established to examine the issues surrounding green education and healthcare, develop best practice guidelines and identify funding opportunities.

Move beyond buildings to communities and cities

4 The GBCA is buoyed by the support the Green Star – Communities project has already received from state and local government – and is encouraging the federal government to provide financial backing and provision of data and information. A cohesive urban policy is also vital to provide an integrated approach to climate change mitigation and environmental issues across Australia's capital cities.

Embed green skills across all industry training

5 Greater support for green skills training is needed to broaden the current focus beyond energy efficiency to other metrics and improve the dialogue between government and industry stakeholders. An holistic approach to green skills must be embraced, with integration of sustainability into the nation's skills base, rather than green skills being seen as an 'add-on' to current curricula.

While there remains a long way to go, a robust partnership between industry and government will ensure best practice across the full gamut of building types and projects is more widely accepted and adopted. It is our vision that, within three years, 'best practice' green building will become the rule across our industry, rather than the exception. ●



Incoll.

Get your head around sustainability with smart green thinking from us.



At **Savills Incoll Project Management**, we've created Australia's most skilled and versatile project management team. With over 70 Green Star accredited professionals, we understand your most complex sustainability challenges. As an inaugural member of the GBCA they can help you reap 'green' benefits with a savvy, practical and rigorous approach. So for smart green thinking on your next project, talk to us.



Our track record

- + Certifier on 1 Bligh St 6 Star Green Star – Office Design v2.
- + Presented Customs House Project to the Inaugural Green Building Council Forum as one of the first projects in Australia to utilise Green Star.
- + Provided the key note speaker to the 2010 GBCA World Green Building Week Gala Dinner.

Our services

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LOOKING BACK ON

2010

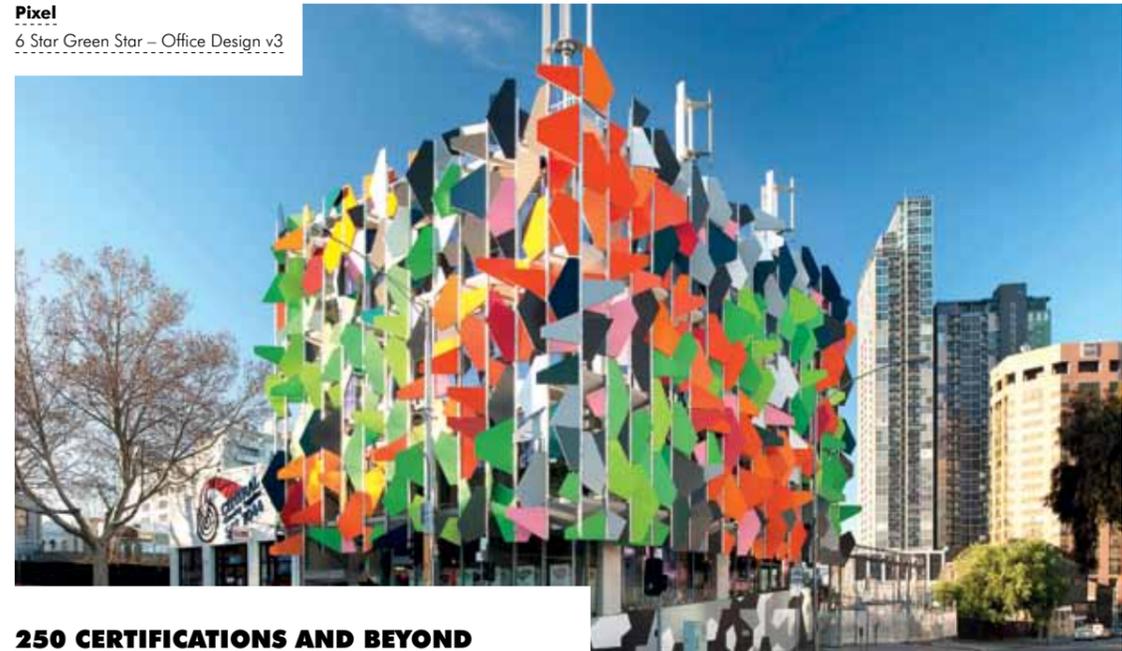


LOOKING BACK ON

2010

Green building continues to be a ‘good news story’ in a tough economic climate. Despite a global economic downturn, a lacklustre construction market around the world and domestic political dramas, the green building industry took a number of long strides on its journey from ‘best practice’ to ‘normal practice’. So, how did the Green Building Council of Australia support the property and construction industry in this challenging environment? How did we ensure that Australia’s green building sector not only survived, but thrived?

Pixel
6 Star Green Star – Office Design v3



250 CERTIFICATIONS AND BEYOND

From a zero base in 2003, by the end of December 2010 we had 292 certified Green Star certified buildings around Australia. A further 419 projects were registered and 70 being processed. Dozens of education, industrial, retail and residential buildings complement the large array of commercial office space seeking Green Star certification.

We certified our 250th Green Star building in July. Appropriately, this building – Grocon’s Pixel Building in Melbourne – was also awarded the highest Green Star score ever, with a perfect score of 100 and an extra five points for innovation.

GREEN STAR SHINES BRIGHTER

In May, the Green Star – Industrial v1 tool was released, signalling an end to the era of ‘industrial’ signifying merely a big tin shed on a concrete slab. Only weeks earlier the first Green Star industrial rating was awarded to Lot 12 TradeCoast Central, which achieved a 4 Star Green Star rating under the PILOT program.

In October, we launched the Green Star – Public Building PILOT rating tool to assess the environmental attributes of everything from libraries, law courts, museums, art galleries and convention centres right through to places of worship.

Also in 2010, the GBCA commenced work on the Green Star – Custom tool development service to give projects outside the scope and eligibility of existing Green Star tools the opportunity to gain Green Star certification. The new Green Star – Custom project is the first step towards a single, comprehensive tool which is able to rate any type of building.

● **Photography** John Gollings

Lot 12
4 Star Green Star – Industrial PILOT



GREENING OUR COMMUNITIES

In 2010, Green Star – Communities continued to build momentum as a project of national significance.

The GBCA, together with project partner, VicUrban, commenced work on the development of a national framework for sustainable communities, which was released at Green Cities 2010. Following this, extensive stakeholder consultation sessions were held around the country, with the Technical Working Committee rolling up their sleeves and commencing work on the tool development in June.

In the last year, the GBCA has secured sponsorship from a wide range of state and local government organisations, including every state government land organisation in the country, as well as private companies. We are confident that the Green Star – Communities tool will become a national voluntary standard for the planning, design and delivery of best practice sustainable community development projects across Australia. →

COLLABORATING FOR CONSISTENCY

In February we signed a memorandum of understanding (MoU) with the federal and NSW governments to deliver a more consistent and compatible approach to building rating. The MoU signals a commitment to greater synergy between the assessment of building attributes covered by Green Star, and performance of key impact areas such as energy, water and waste, which are assessed by NABERS.

FROM VOLUNTARY TO VITAL

We launched our green building agenda during the federal election campaign, outlining the five priorities which we believe will place Australia on a clear, long-term pathway to sustainability.

The GBCA maintained a strong voice during the election campaign, and gained a number of policy commitments from the Gillard Government, including the 'Tax Breaks for Green Buildings' scheme. Green depreciation has long been on the GBCA's agenda, and this new scheme will allow businesses that invest in energy efficiency measures for their existing buildings to apply for a one-off 50 per cent tax deduction.

Another notable policy 'win' was the bipartisan support for the Building Energy Efficiency Disclosure Bill 2010, which was passed by the Senate in June. The GBCA had lobbied all political parties for some time and believes the new federal commercial office building disclosure scheme will help drive the transition to energy efficient buildings.

ONE-STOP-SHOP TO GOVERNMENT POLICY

We updated the Green Guide to Government Policy and now provide it free of charge to all GBCA member companies. The service is an online one-stop-shop covering green building policies, incentives and subsidies across all federal, state and capital cities in Australia. This website is the first of its kind in Australia, and has become an invaluable resource for any business looking to maximise support and funding for its green building initiatives, and for any government policy-maker looking to compare and contrast policies across federal, state or local boundaries.

ADVOCACY EFFORTS REAP REWARDS

The efforts of our advocacy team are reaping rewards, with the updated version of our Green Guide finding that all levels of government now have programs and policies to support sustainable building. Most jurisdictions have developed well-defined policies that guide whole-of-government strategies to encourage sustainable building, covering efficient use of energy, water and materials.

The Green Building Council of Australia maintained a strong voice during the election campaign, and gained a number of policy commitments from the Gillard Government.



Wangaratta High School
4 Star Green Star – Education PILOT

SUSTAINABILITY IN SCHOOLS

The GBCA's advocacy team worked with both state and federal politicians to ensure the Australian Government's stimulus spending on schools delivered a green education revolution. As a result, we now have more than 70 schools registered to achieve Green Star ratings. Many state governments are now mandating Green Star for all new school developments, with others referencing Green Star in determining their standards.

Our green schools campaign is now gathering pace. As each new Green Star school is designed and built, we've been collating the evidence that supports the shift to green. In October we released a policy paper to education ministers and policy makers which outlined why green schools enhance student learning and teacher wellbeing, reduce operational costs and, ultimately, increase quality and competitiveness.

INDUSTRY WELCOMES CREDIT REVISIONS

The GBCA released revised Steel and PVC credits during the year as part of a wider review of four of the Materials category credits. These revised credits were endorsed by the GBCA's Technical Steering Committee following consultation with expert reference panels, extensive reviews of independent research and stakeholder feedback periods. Both revised credits have been accepted by industry.

FOUR CERTIFICATION SCHEMES GAIN RECOGNITION

Four certification schemes were recognised under the GBCA's Assessment Framework for Product Certification Schemes, which the GBCA developed as part of its ongoing review of Green Star. These schemes were:

- Carpet Institute of Australia's Environmental Certification Scheme
- Ecospecifier's GreenTag GreenRate
- Australasian Furnishing Research and Development Institute Limited's Sustainability Standard for Commercial Furniture
- Good Environmental Choice Australia Limited Furniture and Fittings, Floor Coverings, Carpets and Panel Board Standards.

These certifications reinforce the fact that all schemes can be recognised equally, provided they meet the Framework's stringent criteria.

LOCAL GOVERNMENT TASK GROUP TAKES OFF

In April, the GBCA launched a new Local Government Task Group (LGTG) to engage with local councils on green building issues, identify opportunities and barriers, and provide guidance on the use of Green Star. The LGTG is chaired by Wayne Wescott, sustainability consultant and former Chief Executive Officer of the International Council for Local Environmental Initiatives (ICLEI) Oceania Secretariat. →

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At DEXUS we specialise in world-class office, industrial and retail properties with total assets under management of \$13.3 billion. DEXUS is committed to being a market leader in Corporate Responsibility and Sustainability.

For more than a decade we have been implementing best practice corporate responsibility and sustainability programs to minimise the overall environmental impact of our operations, both in the development of new properties and the management and refurbishment of existing properties. This includes our \$40 million commitment to upgrade our office portfolio to an average 4.5 Star NABERS Energy rating by 2012.

Building value through sustainable development

From Australia's first 5 Star Green Star rated office building to our latest 6 Star Green Star rated office developments and our new sustainable industrial developments at Quarry at Greystanes, DEXUS is committed to delivering world-class sustainable workspaces for our stakeholders.



123 Albert Street, Brisbane



30 The Bond, Sydney



Solaris, Quarry Industrial Estate, Greystanes



1 Bligh Street, Sydney



WORLD GREEN BUILDING COUNCIL

WORKING WITH THE WORLDGBC

As an active member of the World Green Building Council (WorldGBC), the GBCA contributes to developments in green building policy and practice at the international level. The GBCA's Chair, Tony Arnel, is also WorldGBC Chair. Under his chairmanship, the WorldGBC continues to provide leadership and act as a global forum to accelerate market transformation from traditional, inefficient building practices to new generation, high-performance buildings.

The GBCA's Chief Executive, Romilly Madew, also plays an influential role in the WorldGBC, chairing the WorldGBC's Development Committee and sitting on the WorldGBC's International Policy Task Force, which was convened to help develop an international consensus around the importance of buildings in mitigating carbon emissions globally.

During 2010, we worked closely with the WorldGBC on a range of issues and activities, most notably World Green Building Week, which was celebrated in September with a range of activities hosted by both the GBCA and member companies.

The GBCA continues to collaborate with neighbouring GBCs through the Asia Pacific Network, which was established in September 2009. In 2011, the GBCA and Singapore GBC have agreed to co-chair the Network to drive connectivity, education, research and regional leadership throughout the Asia Pacific.

INTERNATIONAL CONNECTIONS

The GBCA continued to strengthen its relationships with kindred green building councils, particularly in the Asia Pacific region. We signed an MoU with the Hong Kong Green Building Council to enhance collaboration and accelerate the universal adoption of sustainable building practices.

We also executed an MoU with the Indian Green Building Council which aims to demonstrate how Indian building projects can qualify for carbon offset credits – delivering sustainable building benefits to India and providing huge opportunities for Australian investors, developers and service providers with expertise in green building.

In September, we hosted a delegation from the ChinaGBC, who visited Australia to learn about our leading green buildings, communities and technologies. We are also working with Austrade to identify green building opportunities for our members in Asia. Given our nation's fast adoption of green building practices, companies in Australia have significant experience to offer our neighbours.

EDUCATION FROM TASMANIA TO THE TOP END

One of the GBCA's priorities is to ensure our industry has the 'green collar' skills to ensure we fully capitalise on the shift to a low-carbon economy. Since we began providing Green Star training in 2004, we've trained more than 18,500 people on how to apply Green Star, and sustainability principles, to their building projects. In 2010, we presented more than 100 educative seminars, workshops and master classes to people everywhere from Tasmania to the Top End.

We also proudly launched the Continuing Professional Development (CPD) program in July – with more than 2,500 people signing up within a month and 4,000 subscribed by year's end. The CPD program will help industry practitioners to maintain their knowledge of Green Star and stay in touch with latest trends and technologies in green building.

THOUGHT LEADERSHIP

Dozens of events around the country in 2010 provided thought leadership on green building practices and a forum for the industry's green leaders to connect.

In February, together with the Property Council of Australia, we hosted Green Cities 2010 in Melbourne. More than 1,000 people heard from keynote speakers, engaged in workshops and discussions, launched new products and technologies, and explored new ideas in sustainable building.

We were also co-organisers of the Built Environment Meets Parliament (BEMP) in June, an annual conversation between parliamentarians and industry leaders that showcases the relationship between Australian communities and their built environment.

In September, events and activities in more than 18 countries were staged as part of the World Green Building Week. These highlighted the important role that buildings play in mitigating climate change while addressing local priorities such as affordable housing, job growth and disaster recovery. What started as a day in 2009 and became a week in 2010 may well be 365 days of green building in years to come.

MEMBER CONNECTIONS

Our popular member evenings continue to provide a forum for people in member companies to network with clients, competitors and potential customers. These local events include a run-down of the latest green building developments, and are helping member companies to capitalise on green building opportunities in their local markets.

Given our nation's fast adoption of green building practices, companies in Australia have significant experience to offer our neighbours.



THE VOICE OF THE INDUSTRY

The GBCA continues to support the industry by developing and distributing the most up-to-date information on green building in Australia. Our website is visited by more than 40,000 people each month. Our e-newsletter, *Green Building Voice*, is distributed to more than 16,000 readers each month, and provides updates on our events and activities, our members' environmental achievements and national and international green building news.



BUILDING A ROBUST COUNCIL

Our member companies are the lifeblood of the Green Building Council of Australia. In 2010, we continued to attract new members and retained the majority of our existing membership base – an extremely positive result in a challenging market.

In fact, our membership has grown to more than 900 member companies in every state and territory. Our membership is drawn from a diverse cross-section of developers, local, state and federal governments, owners, professional services firms, investors, manufacturers, suppliers and distributors, facility and asset managers, universities, professional societies, utilities and contractors.

Many of our members have made significant contributions to the GBCA over the course of 2010, dedicating their expertise and time to committees, working groups, campaigns and projects. We continue to attract committed sponsors, without whom we would not be able to host our wide range of events and activities, nor develop new Green Star tools.

In 2010, the Green Building Council of Australia delivered outstanding value to our member companies and furthered our mission to develop a sustainable property industry in Australia. Our perspiration and perseverance has paid off and we are well-positioned to take on the challenges of 2011, all the while making a real difference to our members, our industry, our nation and our planet. ●

The GreenHouse
5 Star Green Star – Office Interiors v1.1

GREEN BUILDING IN AUSTRALIA

20

With a team of 80 researchers, BCI Australia published approximately 75,000 reports in 2010 alerting members to new projects and updating them as they progressed through development stages. BCI project information is sourced through conducting interviews with architects, engineers, developers and builders, as well as through field research, council and state government correspondence, industry network interactions and the invaluable contribution of Omni-Quant's comprehensive tender information.

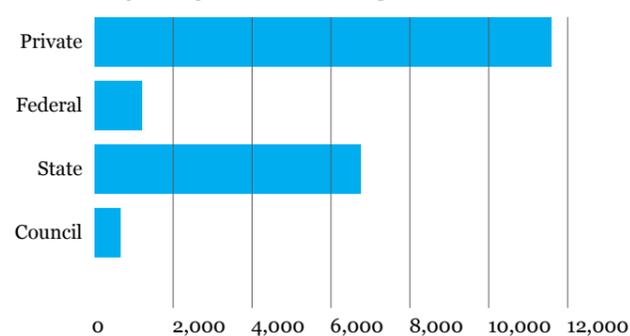
The following information provides a broad illustration of the green building project activity in Australia throughout 2010. The data was collated using green building searches on BCI Australia's LeadManager database over a 12-month period from September 2009 to September 2010.

So, what does BCI data reveal about green building project activity in Australia throughout 2010?

SOURCE OF FUNDING

In 2010, there were nearly \$20 billion worth of Green Star briefs or registered projects in the development pipeline. This is a startling escalation from the previous year which saw \$9 billion of ongoing Green Star developments. According to BCI's Chief Executive, Dr Matthias Krups, this can be partly explained by the overall increase in construction activity in Australia. "However, it cannot be denied that environmental designs and procedures are becoming more seriously considered," he says.

Green Projects, by source of funding



Note: Statistics included in graphs come from BCI database searches of Green Star projects. Not all of these projects will achieve Green Star ratings, but they are specifically aiming for ratings.

Despite enduring the global financial crisis, the private sector is injecting up to \$12 billion into the green market, almost double last year's \$6.1 billion investment. There are currently at least 98 projects with design briefs that specify a particular Green Star rating, representing 2 per cent of all private construction expenditure. Of course, a large number of projects, including hotels, mixed use projects and supermarkets, are not eligible for Green Star.

It is clear from the figures that, as far as publicly-funded Green Star work goes, the states and territories are making the greatest contribution with \$6.38 billion allocated (and this does not include projects that are not eligible for Green Star, such as prisons and swimming pools). This adds up to 3 per cent of state-funded construction and 51 projects around Australia.

Despite enduring the global financial crisis, the private sector is injecting up to \$12 billion into the green market, almost double last year's \$6.1 billion investment.

The relatively low proportion of federally-sourced funding might have been expected to be higher with the influx of outlay to fund the Nation Building – Economic Social Plan (NBESP). The impact of this unprecedented stimulus cannot yet be calculated, but overall the Commonwealth's \$1 billion of Green Star projects is exponentially higher than its 2009 investment of \$150 million. Furthermore, although only 3 per cent of federal funding granted to construction is put towards projects with Green Star rating briefs, this does not preclude high sustainability requirements that are otherwise imposed. Moreover, the swiftness of the NBESP rollout imposed limitations and standardisations, precluding it from individually tailored green solutions and rigorous evaluation.

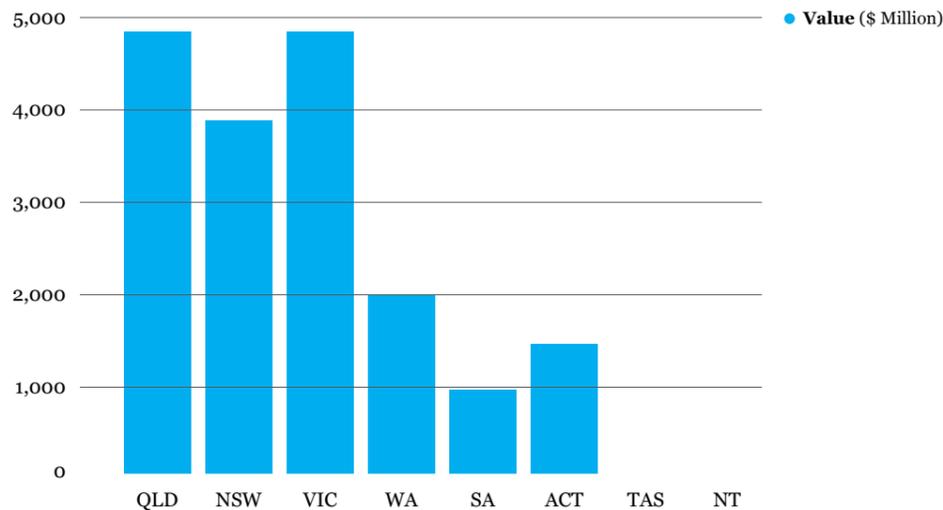
Councils around Australia used their funds to invest at least \$664 million into Green Star projects in their localities. While this translates into only 18 solely council-funded projects, this relatively minor contribution should not be dismissed – with councils directing 16.4 per cent of their funding to green works. While local governments have the smallest budgets, the proportion dedicated to Green Star projects is at least five times higher than any of the other levels of government. →

• Written and compiled by **Michelle Aizenberg**, BCI's Research Manager & Senior BCI Economics Analyst and **Brooke Barr**, Community Director

COMPARISON BETWEEN THE STATES AND TERRITORIES

With such varying populations between the states and territories, it is essential to look beyond the raw figures to the relations, comparisons and proportions.

Green projects, by source state and territory



With \$5 billion worth of Green Star brief projects in the pipeline apiece, Victoria and Queensland are growing to be the greenest states in Australia. Last year, results showed that the highest numbers of green projects were in Victoria and Queensland but when it came down to the amount of expenditure on green projects, New South Wales was still on top. In 2010, it is Victoria and Queensland that dominate green development in Australia.

By far, Queensland offers the most upcoming green projects – 54 projects in the planning phase or recently having commenced construction. This gross number is almost exactly the same as in 2009, but the overall value of the pipeline has grown by \$1.25 billion – a striking 50 per cent increase.

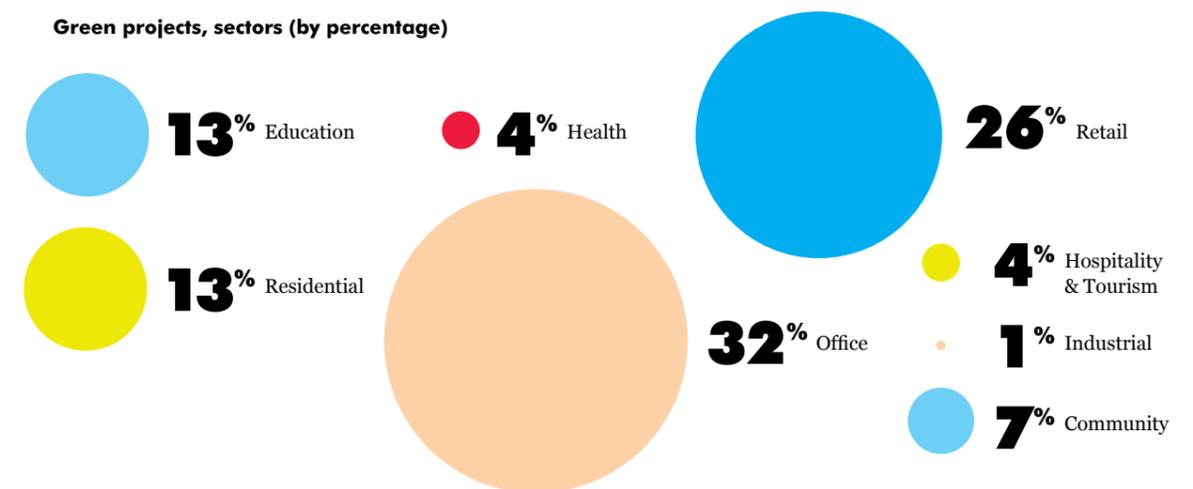
Victoria has only 35 Green Star brief projects in the works but the projects tend to be on a larger scale than those in Queensland. An ambitious Victorian project registered with GBCA and targeting a 6 Star Green Star rating is 735 Collins Street. The \$750 million commercial office towers are being developed by Walker Corporation and Singapore's Kuok Group, and the project has already secured the Australian Tax Office as head tenant in the first stage.

The Australian Capital Territory, Western Australia and South Australia are also building up dossiers of green buildings in their capital cities. Of all the states, the ACT has the highest investment in sustainable construction per capita. In 2010, approximately \$4,358 was spent on green projects for every resident of the territory – almost four times as much as Queensland and more than eight times NSW.



INDUSTRY SECTOR ANALYSIS

Green projects, sectors (by percentage)



Education

In 2010, education projects constituted 13 per cent of all green projects in Australia, up from 9 per cent in 2009. The increase is partly due to continued expenditure by the federal and state governments to aid recovery during and after the financial crisis. The most significant proportion of Green Star brief education projects are TAFE and university buildings, particularly in Queensland, South Australia and Western Australian.

The Commonwealth's schools stimulus package, *Building the Education Revolution*, has resulted in one of the most prolific years for schools spending, but this is hardly reflected in the Green Star figures. The reason for this lies in the scale of the program and the expediency and urgency with which it was rolled out. This is not to say that these projects paid no heed to sustainable design, but rather used more standardised, affordable and tested methods of lessening environmental impact. Template designs and conditions of funding for the \$12 billion *Primary Schools for the 21st Century* program included specifications to maximise energy efficiency with insulation, solar hot water systems, water tanks and energy efficient lighting, heating, glazing and cooling.

Peregian Springs State School

4 Star Green Star – Education Design v1

Green Star-rated projects have long been associated with commercial office spaces but there are other sectors making an impact on greening Australian construction.

Healthcare

The health sector was also subject to various federal funding boosts over the past year, including construction of GP 'super clinics' and cancer research and treatment centres. While only representing 4 per cent of gross project numbers, the health sector's green building in 2010 was worth 7 per cent of the total value of green construction, suggesting that, on average, green health projects are fewer but more costly.

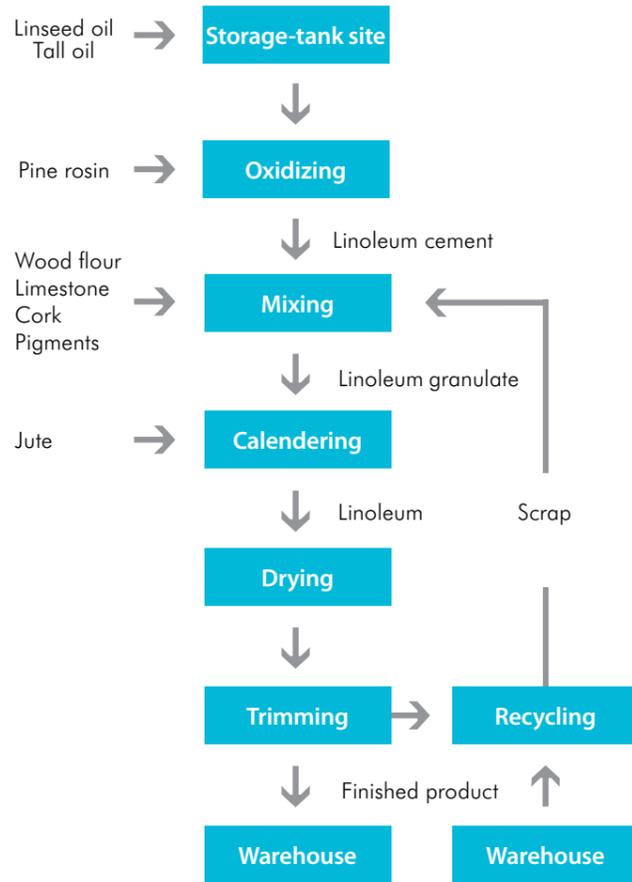
Western Australia experienced the most significant green healthcare boom, particularly in Kalgoorlie and Claremont, and the biggest healthcare project in Australia: Fiona Stanley Hospital and Health Precinct.

Industrial

The industrial sector is not synonymous with environmental consciousness and is relatively new to the field of green building. Industrial projects only reflected 1 per cent of the total number of green projects in 2010, worth \$103 million.

The Sherwood Road Bus Depot was the biggest green industrial project in 2010 and is expected to cost \$75 million to build. The developers have committed to a 4 Star Green Star rating to be achieved by using the latest and most innovative technologies, using sustainable design principles, and ensuring that above-ground fuel tanks will be housed in specialist refuelling sheds within a containment zone. Aside from the green aims for the building, Brisbane City Council has also agreed to rehabilitate the nearby Oxley Creek embankment. →

creating better environments



Sustainable Natural Raw Materials



creating better environments



Full Life-Cycle Assessment

Field to field

Life Cycle Assessment equally measures a product's environmental footprint through its entire life cycle against twelve environmental impact categories (EIC). A bio-based product's lifecycle (like Marmoleum) can be organized into three categories.

1. Field to gate
2. Gate to gate
3. Gate to field/final disposition.

Forbo manage an internal program called "field to field". Our goal is to return as much benefit to the earth as it has given us through its fields and sustainable forests.

Field to gate - Process of raw material acquisition and pre-processing.

These product elements, generally involving outside companies and suppliers are often overlooked by manufacturers when stating their environmental impact, either due to lack of commitment to find data, or direct avoidance of significant negative impacts. Our Field to Field program works with suppliers that grow the flax

to use "best practices" such as no till methods, and proper crop rotation. We also divert all our North American scrap and roll ends, as well as job site scrap to produce compost, thus the term "field to field".

Gate to gate - impacts within the production facility.

These impacts are the easiest to control by the manufacturer and usually the information is made available to the public. Forbo publish a health and environmental report annually and all Forbo linoleum is produced using energy from sustainable sources.

Gate to field - Distribution, installation, use, maintenance and end of life outcome.

Impacts here are often represented by manufacturers as life cycle costing, which, typically measure the financial, non-environmental impacts. The effect of seven process elements are measured equally against the following twelve environmental impact categories (see chart below): Global warming, acidification,

eutrophication, natural resource depletion, solid waste generation, ecological toxicity, human toxicity, ozone depletion, smog formation, indoor air quality, embodied energy content and habit alteration. The cumulative impact of all process elements across all impact categories forms the full lifecycle assessment.

Forbo Flooring Systems support full life cycle assessment, or the foundation that scientifically and transparently allows us to understand a product and its impact on the environment. The information learned from ISO compliant LCA's have helped us identify and focus on areas of attention and chart realistic measurable improvements that lower our environmental burden. Forbo Marmoleum is one of the first floor coverings to publish an independent third party, peer reviewed LCA study. We do this to eliminate the marketing distortions and emotional appeals so prevalent in the industry today.

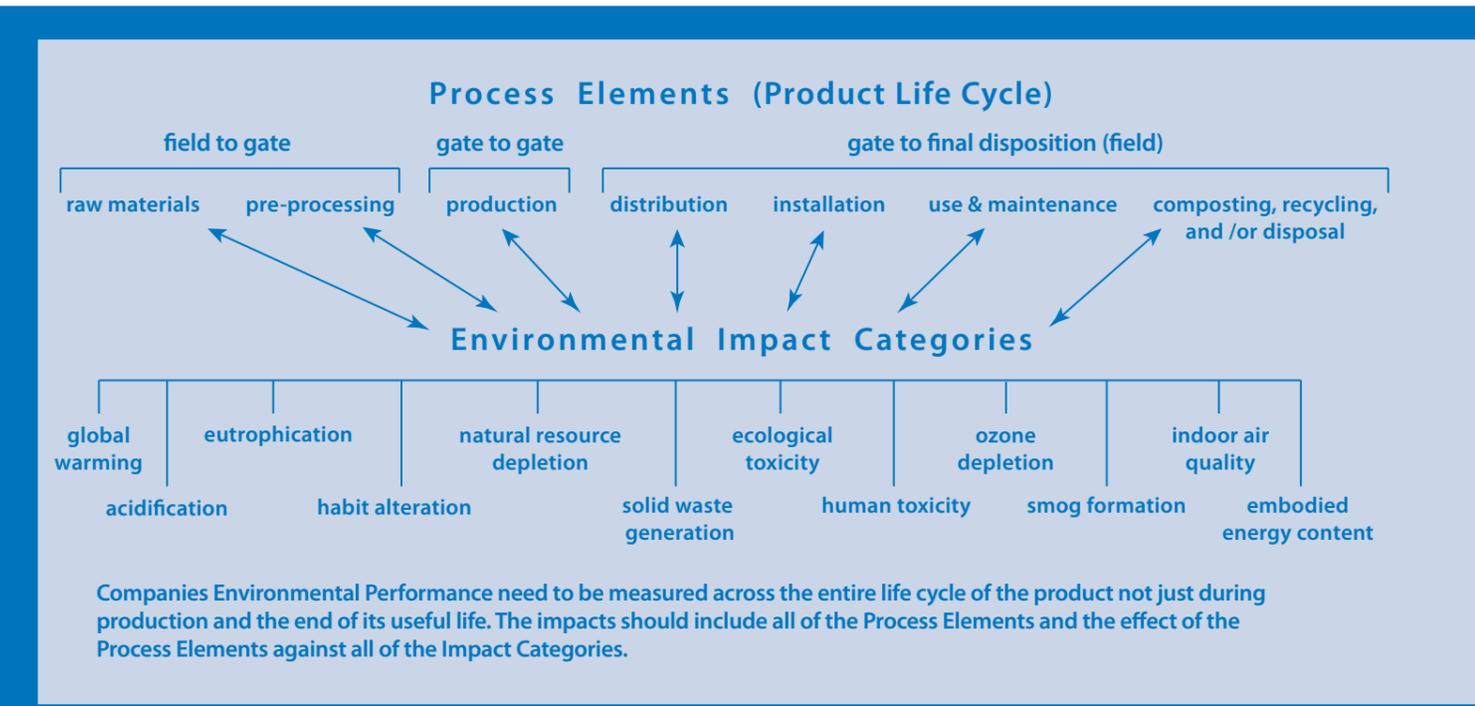
For more information visit our website www.forbo-flooring.com.au or email info.au@forbo.com.

marmoleum® global 3
Production process

For more than 100 years Forbo have produced Marmoleum from natural renewable raw materials and in a sustainable production process. Marmoleum achieves the most independent third party, peer reviewed; LCA based environmental labels of any resilient flooring and was the first GECA certified resilient floor in Australia.

As long as the sun shines and the rain falls Forbo Flooring Systems can produce Marmoleum. There are five steps in the production process. First linseed oil, sourced from specially grown flax in Canada is mixed with tall oil and pine rosin. The mix is then exposed to the air at a certain temperature. During this curing time the oxygen in the air causes the natural oils in combination with pine rosin to produce linoleum cement, which is a sticky binding agent. Once cooled the linoleum cement is mixed with wood flour from controlled European plantations, ecologically sound pigments and limestone. This forms granules or linoleum granulate. This granulate is then rolled (calendered) onto a jute backing. The rolls are then hung for two or three weeks in drying rooms until they reach the desired hardness and flexibility. The linoleum is then given an advanced water based, protective finish called Topshield. Topshield reduces cleaning and maintenance throughout the life of the product and does not require harsh chemicals. The rolls are trimmed to size and all production waste and ends are ground into powder and returned to the production line for reuse.

For more information please visit www.forbo-flooring.com.au or call 1800 224 471



Companies Environmental Performance need to be measured across the entire life cycle of the product not just during production and the end of its useful life. The impacts should include all of the Process Elements and the effect of the Process Elements against all of the Impact Categories.



green building council australia
MEMBER 2010-2011



Residential (including aged care)

Thirteen per cent of green projects were residential in 2010, with two particular types of residential projects tending to employ strict green building standards. The first of those types is the large-scale inner city apartment development. At the site of the former Carlton United Brewery within Sydney's central business district, Fraser's Broadway brings together a variety of environmental design principles in order to make the most of the location and provide comfort to the residents. At \$1 billion dollars and providing 1,400 units with an aim of a 6 Star Green Star rating, it will be a significant green residential development.

The other type of residential project which is likely to incorporate green designs is social housing. Not only are social housing units expected to be cheaper to build and maintain but also more accessible for people who are ageing or living with disabilities. It has also become clear that there are very sound reasons for using green design principles. Under the NBESP's Social Housing program, the state and territory governments have advised that 97 per cent of units built or refurbished under Stage 2 (approximately 16,155 units) will achieve a six star energy efficiency rating. This entails fitting insulation, draught proofing, solar hot water heater (or equivalent), energy efficient lighting and glazing, shading, ventilation, closing mechanisms and water tanks.

GENERAL OBSERVATIONS

The 2010 statistics suggest that, overall, the green building sector has performed well in an unstable economic environment. The Australian construction market is learning from the performance of existing green buildings and translating these successes into new buildings.

BCI's Chief Executive Dr Matthias Krups says: "In speaking to construction professionals and contractors, BCI researchers have noticed a promising shift from a perception of green building as an expensive ideal, to an expectation that the majority of projects should at least be minimally environmentally sensitive."

Furthermore, the federal government's emphasis on economic stimulus through construction, together with the pressure for governments to develop or occupy spaces constructed with environmental best practice standards, has pushed a high volume of green projects into the development pipeline. Dr Krups believes sustainable buildings are here to stay. "Anything built today that is not green will age prematurely," he comments. 2011 will be a year to look forward to with confidence.

ABOUT BCI AUSTRALIA

BCI Australia provides crucial construction information, project leads and a powerful online CRM solution to building product suppliers, contractors and related organisations within the Australian construction industry.

BCI's dedicated team reports and researches Australian construction projects – within the public and private sectors – from concept design and planning stages to documentation, tender, the awarding of contracts and commencement of construction. ●

For further information, please visit www.bciaustralia.com

Data collated from 1 September 2009-31 August 2010. For further information, please contact Brooke Barr, Community Director, on 0410 420 713 or b.barr@bciaustralia.com or visit www.bciaustralia.com



*2011 will be a year
to look forward to
with confidence.*



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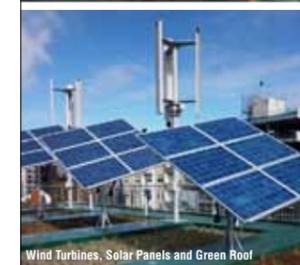
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UMOW LAI ACHIEVES PERFECT RESULTS

Umow Lai is proud to have delivered a perfect (105 points) Green Star result for Australia's first carbon neutral commercial project, the Pixel Building.

Umow Lai was the Sustainability and Services Engineering Consultant for this truly innovative building that provides a benchmark for the design of sustainable offices of the future.

Achievements

- Perfect 6 Star Green Star – Office Design v3 rating of 105 points
 - Water balanced
- Australia's first carbon neutral office building
 - Aiming to achieve the highest ever US LEED and UK BREEAM ratings
 - Targeting 6 Star Green Star - Office As Built v3 and Office Interiors v1.1 ratings



Umow Lai
engineering sustainable environments
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Solar pays in the fight against **climate change**.



THE ROAD TO GREEN PROPERTY

• Michael Manikas, Associate Director & Sustainability sector leader, Davis Langdon

The achievement of a high Green Star rating in the new office market has long been perceived by office developers as an essential part of marketing to attract long term tenants, preserve the value of the office and provide healthier environments for the building's occupants.

Drawing on its global reach, local knowledge and technical excellence, Davis Langdon provides ongoing research into the costs, benefits and legacy of sustainable design and construction.

GREEN STAR OFFICE – DESIGN & AS BUILT

Green Star ratings have become a regular consideration in the commercial office market since the initial release of Office Design v1. The achievement of a high Green Star rating in the new office market has long been perceived by office developers as an essential part of marketing to attract long term tenants, preserve the value of the office and provide healthier environments for the building's occupants.

The inclusion of environmental requirements within the Property Council of Australia's *Guide to Office Building Quality* has had an impact on building owners across Australia. New Premium Grade and A Grade buildings are required to meet a minimum of 4 Star Green Star and 4.5 Star NABERS.

As such, green design strategies have become 'the norm' for higher quality buildings, and the twin perceptions of extra cost and risk have diminished. Most industry commentators are already claiming that the market now regards 5 Star Green Star as the base criterion for a marketable building.

Over the last five years the take-up of sustainability has increased dramatically. Design solutions which were once seen as leading edge and innovative have become accepted practice as tenant expectations have driven the minimum sustainability demands upon office buildings upwards, particularly within the nation's central business districts (CBDs).

Developers and builders have risen to the challenge and are increasingly delivering buildings of high quality which incorporate Green Star ratings. Because these buildings are becoming the norm, the cost 'penalties' that were previously associated with achieving a 4 or 5 Star building have now been eroded within the major CBD markets, as this base expectation is now required to attract long term tenants. →

AECOM Fitout

4 Star Green Star – Office Interiors v1.1

The tenant expectations of improved indoor environment quality, energy reduction and improved amenities (such as cycling facilities) are now almost a 'given' in many cities around Australia.



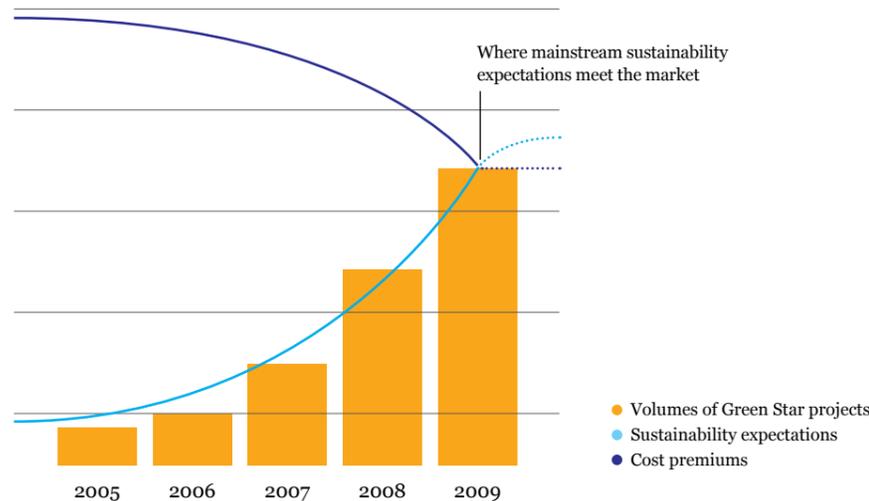
This is leading to a two-tier cost structure where the quality benchmarks of buildings, together with their associated baseline costs, have risen to respond to this demand. It could be argued that there is no longer any 'premium' for a Green Star building within the CBDs, as these elements are required irrespective of whether a building will be rated. This is being dictated by market forces and a clear demand for better quality buildings.

Yet the same cannot be said for non-CBD buildings where the demand and associated rental structures are not enabling the same level of take-up for sustainable features. In many of these non-CBD areas it can be argued that there is still a 'premium' for green buildings, although Green Star projects in Bendigo, Darwin and Cairns, for instance, are still achieving great outcomes. Nevertheless, Australia's regions are more commercially-constrained markets, making them slower to deliver the kind of changes which have already occurred in areas with higher tenant concentration and demand.



Bendigo Bank
5 Star Green Star - Office Design v1

Green building expectations and cost premiums over time



GREEN STAR OFFICE – INTERIORS

The number of projects registered for certification under Green Star – Office Interiors v1.1 is clear evidence of the growing popularity of green fitouts. Through an innovative and life cycle approach to design, many of these projects demonstrate the sizeable business and environmental benefits that can be achieved – without compromising commercial viability.

Project teams indicate that the additional costs (above a comparable non-green project) are in the order of 0-5 per cent for a 5 Star Green Star certified fitout. However, Davis Langdon expects the perception of extra cost to diminish over time as innovative design becomes the norm and companies realise the values and benefits of going green.

GREEN STAR – HEALTHCARE

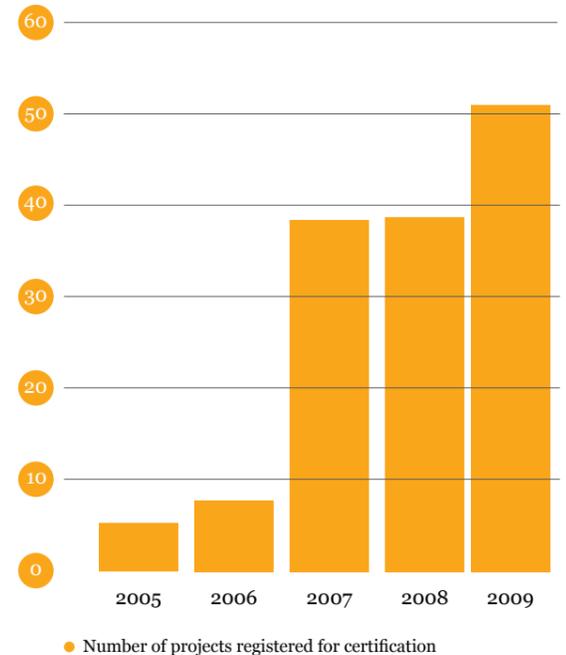
Healthcare facilities are an enormous sustainability challenge; on average a hospital requires at least twice as much energy per square metre and six times more water than an office building. Since such projects represent a significant hurdle for the sector, addressing these issues has brought about new ways of thinking and a long awaited leap in the evolution of Green Star.

Within the healthcare system, assets are not generally subject to industry-driven market factors such as tenant attraction, retention or building resale value.

Instead, key benefits include a reduction in environmental impact, cost-savings through lower energy, water and waste bills, as well as improved patient and staff well-being (improved recovery times, increased productivity and reduced staff turnover).

Davis Langdon's research shows that the cost of achieving a 4 Star Green Star - Healthcare v1 rating is in the range of 0-3 per cent above baseline costs. A 5 Star Green Star rating is in the order of 3-6 per cent above baseline costs. The primary cost differentiator relates to the energy/emission reduction approach, and the incorporation of a trigeneration plant. →

Green Star – Office Interiors Projects



Quantifiable Benefits	Qualitative Benefits
Improved energy efficiency	Improved staff productivity, retention and morale
Reduced emissions	Greater patient wellbeing
Improved water efficiency	Improved patient recovery times
Reduced operating costs	Meeting community expectations
Less ongoing maintenance required	
Reduction in environmental impact	

The quantifiable economic benefits of improved energy efficiency, lower emission charges and improved water efficiency have the potential to reduce healthcare operational costs. Total Energy and Water costs for a major hospital are typically around 1 per cent of annual operating costs, so it follows that annual operating costs can be reduced, for example, by some 0.2 per cent if Energy and Water costs are reduced by 20 per cent. Such Energy and Water initiatives have the potential to provide reasonable pay back periods that are typically in the order of approximately eight years.

Any established improvement in staff productivity, staff retention and patient wellbeing has significant potential to reduce healthcare operational costs. For example, staff costs in an acute hospital may be in the order of 70 per cent of all operational costs. If savings can be made in this cost area then significant overall cost savings are possible.

GREEN STAR – EDUCATION

The Green Star – Education v1 rating tool assesses the environmental attributes of new and refurbished education facilities in Australia. It can be applied from the design phase of a project and up to two years from practical completion. The tool represents a milestone in the assessment of environmental attributes of education facilities, and is expected to guide the industry towards more sustainable design practices.

The cost of paying consultants to complete the documentation required to achieve certification can be an obstacle for many schools. However, the growing enthusiasm for sustainability that exists within government and other organisations means that schools are now more likely to find support to achieve Green Star certifications. It has also been found that the added cost of building a more sustainable school is offset by the use of natural light, more efficient heating and cooling systems, and better insulation.

Quantifiable Benefits	Qualitative Benefits
Improved energy efficiency	Hands-on learning opportunities for students related to energy use, climate change, water
Reduced emissions	Greater staff and student attraction, recruitment and retention
Improved water efficiency	Improved wellbeing for staff and students
Reduced operating costs	Meeting community expectations
Less ongoing maintenance required	Enhanced school reputation
	Sustainable lessons are carried with students into later life

The Green Star – Multi Unit Residential v1 rating tool was developed to promote the design and construction of high performance green residential developments.



The Summer
4 Star Green Star – Multi Unit Residential PILOT

GREEN STAR – MULTI UNIT RESIDENTIAL

The approach for a 4 Star Green Star solution can be achieved fairly simply by adopting readily-attained credits available for Management, IEQ, Energy, Transport, Water, Materials, Land Use & Ecology, and Emissions. A 4 Star Green Star – Multi Unit Residential rating is achievable for a new architecturally-designed apartment building with minimal additional cost. By appointing consultants with a thorough understanding of Green Star and good passive design, the cost premium is expected to be in the range of 0-2 per cent.

The approach for a 5 Star Green Star solution will tend towards either an Energy reduction or Water reduction approach. It is expected that the additional cost of achieving 5 Star Green Star would be in the vicinity of 5 per cent.

A 6 Star solution will need to consider a combined Energy and Water reduction approach. It is also expected to demonstrate innovation and use emerging technologies, with a greater focus on life cycle benefits. Potentially, the additional cost would be 10 per cent or more, depending on the design of the building. A 6 Star Green Star residential development is also likely to feature an iconic design.

Recent studies carried out by Davis Langdon on residential projects on Manhattan Island in New York City found that LEED certified projects (the US' equivalent to Green Star) were cheaper to deliver than non-green projects.

GREEN STAR – RETAIL

The Green Star – Retail Centre v1 rating tool assesses the environmental attributes of new and refurbished retail centres in Australia. On projects with which Davis Langdon has been involved, only a slight premium (less than 1 per cent) has been recorded to achieve 4 Star Green Star. Cost premiums for 5 Star Green Star are approximately 5 per cent and 6 Star Green Star are 10 per cent and above.

However, the demand from shoppers for green buildings is not as great as the demand from companies for sustainable office space, or even from homeowners for sustainable housing. Most major retailers are yet to demonstrate decisive leadership in this area and until they begin to place demands on shopping centre owners there will not be sufficient pressure for a move towards greener retail buildings.

ABOUT DAVIS LANGDON

As part of the global professional technical services consultancy AECOM, Davis Langdon is committed to delivering better client outcomes that enhance and sustain the world's built, natural and social environments. Drawing on its property and construction risk and value management services, combined with AECOM's diverse team of 51,000 professionals globally, Davis Langdon provides integrated solutions that manage time, cost and quality imperatives.

Davis Langdon's strong track record in environmentally sustainable development crosses multiple disciplines. The team at Davis Langdon include cost managers, project managers, engineering services cost managers, risk managers, urban planners, building surveyors and specification services specialists all actively involved in the delivery and documentation of projects incorporating sustainable environmental design. ●

workplace⁶

6 Star Green Star – Office Design v2

6 Star Green Star – Office As Built v2



Abigroup House

4 Star Green Star – Office Design v2

4 Star Green Star – Office As Built v2



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CASE STUDIES



PIXEL, MELBOURNE	44
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PIXEL



When Pixel became the first building to achieve a perfect Green Star score, it heralded a new era of sustainable infrastructure in Australia. Pixel, with its 6 Star Green Star - Office Design v3 rating and the highest ever Green Star score of 105, has proven that Australian buildings can demonstrate true world leadership in sustainable design.



PROJECT DATA

Location
205 Queensbury Street,
Carlton, Victoria

**Developer/
Owner/Builder**
Grocon

Size
840m² NLA

Architect
studio505

**Building services
engineer/ESD/
Consulting engineer**
Umow Lai

Structural engineer
VDM Consulting



“Pixel is a world first, not just an Australian first,” says Daniel Grollo, Chief Executive Officer of Grocon. “We believe Pixel is truly the office of the future and one of the most sustainable buildings in the world. We hope it will lead the way in terms of carbon neutrality and sustainability for years to come.”

Chief Executive of the GBCA, Romilly Madew, has welcomed Pixel as a ‘green masterpiece’ which has gone above and beyond the ‘norm’ in green building innovation. “This building will redefine the way buildings are built in the future. It is arguably Australia’s greenest building, and possibly the first building of its kind in the world.”

SMALL BUILDING BIG ON IDEAS

Pixel is an attempt to deliver a prototype office of the future that tackles the issue of carbon head on. Whilst it is small, with a gross floor area of just over 1,000m², it is packed full of innovative features intended to light the way for the sustainable building industry.

Its features range from the distinctive ‘pixilated’ sun shade system, which allows daylight to enter the office space while giving protection from glare and heat gain in the summer, to its more subtle aspects such as smart windows, which open on cool nights to flush the building with air and lower its temperature. No matter where you look in the building, there are cutting edge examples of sustainable design.

Speaking to Shane Esmore, Director and Principal Sustainability Consultant at Umow Lai, this comes as no surprise. “The aim of the project was clear from the start,” he says. “Our objectives were to provide an example of the sustainable office of the future and to set a benchmark that exceeds all current-day sustainable office developments.”

NO HOT AIR

The original brief for Pixel was that the building be carbon zero, meaning all of the carbon generated annually in running the building was offset by renewable energy. The reason for this, as David Waldren, Carlton Brewery General Manager, explains, is that “eventually Australia will get a carbon-constrained economy – there’s no question about that. The development sector needs to address the fact that buildings are the second biggest emitters of carbon dioxide.”

Not content with carbon zero, the project team undertook an investigation early in the design process to see whether the building had the capacity to deliver more savings and become ‘carbon neutral’. The goal was to offset not only all the carbon used during the building’s operation, but also the carbon embodied in the materials used in construction, through the use of renewable energy over a period of time.

They found that, by modifying the design and factoring in a 50-year life cycle, Pixel would deliver a net carbon benefit to the environment.

“Pixel delivers carbon neutrality on a building utilising reasonably traditional commercial building materials, and delivers that solution on a 250m² site without requiring the provision of offsets from off site,” explains Waldren.

The building’s ability to produce all its power needs onsite makes Pixel truly unique. An extensive photovoltaic array on the roof, mounted on a tracking device to improve output by 40 per cent, and combined with the first commercial application of the most efficient 1kW wind turbines currently in production, allows Pixel to generate more electricity than it requires.

Daniel Grollo says that “any carbon emissions as a result of the building’s ongoing operation are offset by renewable energy from photovoltaic panels on the roof, as well as wind turbines. Over time Grocon will offset all of the carbon that was generated in manufacturing and installing construction materials.”

SETTING A TREND

Concrete is one of the most carbon-intensive products in the world, with Portland cement accounting for nearly 6 per cent of global greenhouse gas emissions every year. To reduce Pixel’s concrete-related emissions, the project team worked for 12 months with Boral Concrete to develop a new structural concrete with significantly reduced embodied carbon and an emphasis on recycling.

The result is ‘Pixelcrete’, a special concrete which uses 60 per cent less cement and contains 100 per cent recycled and reclaimed aggregate. According to Howard Titus, Technical Manager of Grocon Constructors and in-house concrete expert, “up to 92 per cent of the weight of the concrete is industrial waste, recycled or reclaimed material.” →

Furthermore, the mix achieves the same strength as traditional concrete and can be used in the same way as traditional concrete. “We used Pixelcrete for the piles, groundworks, slabs and columns,” Titus says. “And for the first time, we used plasticised concrete for suspended post-tension slabs.”

The use of Pixelcrete earned the project full points under the concrete credit.

GREEN UP TOP

Pixel features a combination of green spaces which are functional as well as aesthetic. As Dylan Brady, director of studio505, explains, “the opportunity to create a building that sought to be water-balanced, requiring no more water than the rain that fed it, was irresistible.” The idea was to create ‘living edges’ around the façade that could flourish on filtered grey water, creating a distinctive integrated architecture. These living edge reed beds installed on the northern and western façades filter all the projected grey water, and create an intimate indoor quality experience of sustainable growth, while cooling locally behind the façade through evapotranspiration. With the exception of the wettest month of the year, the projected evapotranspiration of the living edge will mean no grey water waste will leave the Pixel site, and cooling-related energy costs will be greatly reduced.

Experimental beds of native grasses have also been planted on the roof to help control temperatures in the building. The aim of this is to reintroduce Victorian grassland species back into the Melbourne area. Due to their experimental nature, a team from Melbourne University will monitor the beds and examine variables such as grass types, appropriate soil mixes, and the impact of leached chemicals to determine the most successful combinations. The best results will then be transferred to other developments.

After rainwater falling on the living roof has been used to irrigate the beds, it will be captured and stored in tanks within the building. Once there, it will be treated by reverse osmosis to potable water standard and then distributed to all fixtures and fittings within the building.

In this manner, Pixel aims to be completely self-sufficient in all its water requirements, a critical issue in any state of Australia, and more and more so around the world.

A GLOBAL HAT TRICK

Pixel is also seeking to achieve record-breaking scores under both the US LEED and the UK BREEAM rating systems.

Under LEED, the environmental rating tool of the US Green Building Council, Pixel is aiming to achieve a Platinum rating, and the team is hoping that its unique mix of sustainability features will deliver it the highest LEED rating yet achieved anywhere in the world. Similarly, Pixel is to be rated under the BREEAM ‘Bespoke International’ tool, and is aiming to achieve the highest score yet from the approximately 714,000 registered BREEAM projects worldwide.

With Pixel now at the forefront of the global sustainable building drive, it demonstrates how far the building industry in Australia has come in a relatively short period of time.

AMBITIOUSLY INNOVATIVE

To show its innovative mettle, the project claimed 30 innovations, despite knowing that only five points could be awarded.

The installation of small-scale vacuum toilet technology was just one of the innovations awarded. The technology, which is similar to a more sophisticated version of an aeroplane toilet, has been sourced from northern Europe where it has been developed for high-quality office and accommodation buildings. The system will reduce water consumption to an absolute minimum and help Pixel to maintain water self-sufficiency.

Another standout innovation used in Pixel is the anaerobic digester installed on the ground level. Comprised of a tank system which will hold all of the blackwater waste from toilets and kitchen facilities, the digester will extract methane from the waste. The gas harvested is then used to replace natural gas for heating and cooling the water system, while the blackwater waste remaining is sent to the sewer in liquefied form, and with reduced methane levels. This result means that Pixel both limits methane emissions and avoids the need for fossil fuel gas to boost the solar hot water system.

Under the Green Star rating system, 75 points is the benchmark for a 6 Star Green Star rating. The Pixel building was awarded a perfect 100-point score, and gained an extra five points for innovation.

“When Green Star was first established, very few projects claimed or were awarded Green Star points for innovation,” explains Romilly Madew. “Today, projects regularly claim innovation points, and the Pixel building was awarded the full five innovation points for a range of measures, including its carbon neutrality and water self-sufficiency.

“The Pixel building is a clear example of the shift within the property and construction sector. Today, we’ve moved beyond the recognition that buildings are merely resource consumers, and are now working on ways to ensure buildings can be producers of resources,” Madew concludes.

ESD INITIATIVES FEATURED IN THE PROJECT

Indoor Environment Quality

- Underfloor air distribution with individual occupant control
- 100 per cent outside air, at rates 150 per cent above code requirements
- Slab cooling

Energy

- Cooling and heating provided by a gas-fired ammonia absorption heat pump/chiller, with an air-cooled condenser
- High efficiency lighting with daylight control

Transport

- Bicycle racks, showers and lockers installed for building users
- Close to public transport
- No car parking provided for the building

Water

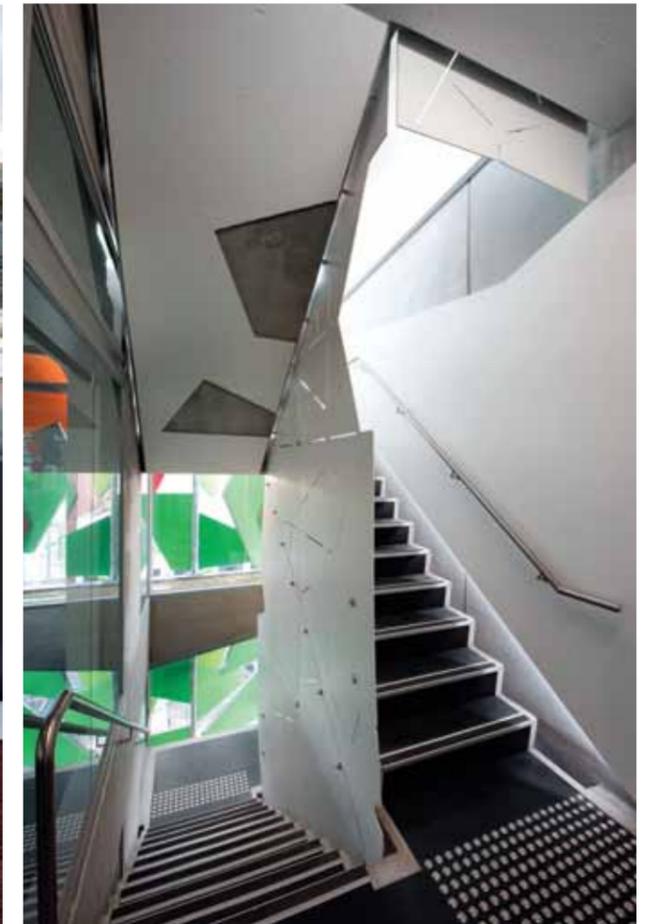
- Designed to have 100 per cent water self-sufficiency
- Low flow fixtures and fittings
- The first commercial vacuum toilet system in Australia
- A world first anaerobic digester harvesting biogas

Materials

- Building façade designed for disassembly

Emissions

- Zero GWP and ODP refrigerants.



The Pixel building is a clear example of the shift within the property and construction sector. Today, we’ve moved beyond the recognition that buildings are merely resource consumers, and are now working on ways to ensure buildings can be producers of resources.

● Photography John Gollings

100 MARKET ST SYDNEY

The 100 Market Street project, which has received a 6 Star Green Star - Office Design v2 rating representing world leadership in sustainable design, consists of the refurbishment of the 30,000m² office space below Sydney Tower. This is part of a larger redevelopment for Westfield Sydney which will also incorporate a new 33,000m² office tower and the amalgamation of three existing shopping precincts into a 40,000m² retail centre.



PROJECT DATA

Location 100 Market Street, Sydney	Total Floor Area 30,000m ² GFA refurbished office space below Sydney Tower	Architect Retail: Westfield Design Commercial: Westfield Design in association with JWA
Owner Westfield	ESD consultant Cundall Services	External Building Envelope: Westfield (Design) & JWA (Concept)



Westfield's ambitious project is reshaping the heart of Sydney's central business district, and integrates Westfield Centrepont and the Centrepont Convention Centre, Imperial Arcade and Skygarden, providing a new office tower at 85 Castlereagh Street, as well as the extensively modified and refurbished office tower at 100 Market Street.

"Westfield has realised the green aims of the Green Building Council of Australia's Green Star rating tools, and we commend the Westfield Group for taking action to develop sustainable properties within its portfolio and for embracing green practices within its business," says GBCA Chief Executive, Romilly Madew.

WATER WISE

100 Market Street is meeting the challenges of Australia's water-scarce future through intelligent design and water-efficient technologies. The project will see the installation of one of Australia's largest urban blackwater recycling systems which will retain and treat all waste water on the site for non-potable uses, such as sanitary flushing and cooling tower water. In combination with high efficiency tapware, this site-wide water strategy will reduce potable water consumption by 93 per cent.

POWER PLUS

Energy efficiency is a challenge in many commercial building spaces. At 100 Market Street, a highly efficient tri-generation system will provide approximately a quarter of the base load, use the waste heat from on site gas-fired electricity generation to supply hot water as a by-product, as well as provide heat to absorption chillers for conversion to cooling for the building.

On site generation will substantially reduce peak energy demand, future-proofing the development against both rising peak and base electricity costs. This measure will help 100 Market Street deliver a 41 per cent reduction in greenhouse gas emissions. The development has also targeted a 5 Star NABERS Energy rating.

CLEARING THE AIR

Occupant amenity has been optimised by ensuring high levels of thermal comfort through an efficient façade design and air-conditioning system. Thermal comfort is provided via the hybrid perimeter chilled beam system, which conditions the space and uses minimal amounts of energy. Natural daylight levels into the building have been increased by 20 times when compared with conventional buildings and external views have been improved by nearly 50 per cent by demolishing parts of the previous floor plate and installing 'feature' atria light wells and façade panels.

REDUCE, REUSE, RECYCLE

During the Westfield Group's redevelopment of 100 Market Street, 90 per cent of the existing structure was re-used in the refurbishment and over 80 per cent of demolition and construction waste was recycled. This has reduced the project's total embodied energy for the development, and Westfield aims to set a precedent for urban renewal projects in the Sydney CBD.

GREEN GAINS

Westfield Australia is committed to making sustainability part of its day-to-day business practices. With drought conditions making headlines around the nation in 2006, Westfield set water-saving targets for all its shopping centres and achieved a 13 per cent reduction in water use from 2006–2007. In the same period, Westfield Australia reduced its overall energy consumption by 9.2 per cent and its waste production by 8.7 per cent, and increased its cardboard recycling by 16.7 per cent. It also introduced an organic recycling scheme.

The Sydney development is enabling Westfield to showcase some of the sustainability principles currently being embedded in the company. Westfield is experimenting and innovating with new sustainability techniques and technologies, and recognises that improving the adoption of low carbon and carbon-reducing practices can assist with retaining and attracting retailers and staff.

"The reopening of 100 Market St is the first stage of the Westfield Sydney project to be completed. We're very pleased to have achieved a 6 Star Green Star rating on the site, particularly given that it was a refurbishment of an existing structure. We look forward to completing the remainder of the project which also has a range of environmentally sustainable design elements," says Westfield Australia and New Zealand Managing Director, Robert Jordan.

ESD INITIATIVES FEATURED IN THE PROJECT

Indoor Environment Quality

- Low-VOC products used for paints, sealants and finishes
- Improved fresh air rates

Energy

- Peak energy demand reduction
- Office zone lighting

Transport

- Cyclist facilities
- Easy access to public transport

Materials

- Reuse of existing structure

Emissions

- Refrigerants used with zero ozone depleting potential (ODP).



AECOM FITOUT

AECOM's new Western Australian headquarters is located in the iconic GPO Building in the heart of the Perth CBD. The recently-refurbished, heritage-listed building is one of the state's oldest in operation and attained a 4 Star Green Star - Office Design v2 rating in 2008. The AECOM fitout extended this philosophy to achieve a 5 Star Green Star - Office Interiors v1.1 rating, the first project in Western Australia to do so.



A SUSTAINABILITY SHOWCASE

AECOM is recognised as one of the world's leading engineering design firms and has an exceptional track record in sustainable design, so pursuing a Green Star rating was essential. According to Graham Agar, Associate Mechanical Engineer at AECOM, "it was critical to demonstrate that we put into practice exactly what we preach by designing, building and occupying a fitout that represents Australian excellence in sustainable design."

The GPO Building is now a sustainability showcase for AECOM, demonstrating how a good design team and a commitment to innovation can deliver outstanding results, even within the challenging constraints of an existing, heritage-listed building.

CLEARING THE AIR

When AECOM's design team sat down together to design their dream green fitout, they needed to determine which areas would deliver the best 'bang for their buck'. "We focused on design initiatives that would have the best result for our employees, our energy consumption and our ongoing costs," Agar explains.

The top priority was improving indoor environment quality (IEQ). Good IEQ is nothing to be sneezed at, with CSIRO modelling finding that improvements in IEQ have the potential to save Australia's economy up to \$21 billion each year. In AECOM's fitout, outside air rates have been increased to more than 100 per cent above the minimum standard, carbon dioxide detection has been installed in all enclosed spaces, and exhausts fitted for all print and utility rooms. These factors have contributed to increased employee engagement and productivity, while also providing AECOM clients with a living, breathing example of a green office.

PROJECT DATA

Location
GPO Building, Perth

Owner
AECOM

Engineering Services and ESD
AECOM

Size
8010m² NLA

Architects
BVN and Hassell

green building council australia



Office Interiors Design v1.1 2010

DESIGNED FOR DISASSEMBLY

Design for Disassembly (DfD) is a design strategy that considers the future need to disassemble a product for repair, refurbishment or recycling. AECOM's fitout embraces the DfD philosophy, with fully modular, recyclable workstations that are easily disassembled without the use of specialised tools or expertise. While the workstations are good for the natural environment, they are good for the work environment too, as they encourage collaboration between teams.

"Our focus was always on creating a truly excellent facility for our employees," Agar says.

"The GPO fitout provides an environment that's clean, collaborative and cleverly-designed. It's a building of which we can all be proud", says Rochelle Zaknich, AECOM employee.

SMART METERS PROVIDE A PAYBACK

Post occupancy, the energy consumption of the fitout has been much lower than anticipated. AECOM believes this is due to employees being inspired to 'think green', thanks to the state-of-the-art, sustainably-designed fitout. Smart meters on each floor are also helping, with strict energy budgets ensuring that 'what gets measured gets managed' in a proactive manner. Overall, the new fitout is providing AECOM with a sustainability dividend of around \$5 per square metre per year on energy costs alone.

GOING THE DISTANCE

Perth is the world's most isolated city – and this proved a test of the project team's commitment to Green Star. The city's relatively small, isolated market meant that some materials, particularly those with the EO formaldehyde levels required to achieve some Green Star points, could not be sourced. Finding contractors with the appropriate experience to work on the West Coast's first Green Star Interiors v1.1 project was also a challenge.

Despite these obstacles, the project team was able to deliver a 5 Star Green Star result, reflecting Australian excellence. What's more, AECOM not only demonstrated the benefits of Green Star and its commitment to green building, but also helped to widen the pool of skilled 'green collar' workers in Western Australia. According to Graham Agar, "We hope our efforts demonstrate that, despite the tyranny of distance, Green Star interiors are achievable in WA."

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- More than 80 per cent of all construction and demolition waste was recycled and an ISO14001 certified Environmental Management Plan was used for the entire fitout process

Indoor Environment Quality

- More than 60 per cent of workstations have access to views and the entire building boasts excellent natural lighting

Energy

- Targeted 20 per cent improvement on 5 star NABERS Energy performance

Transport

- Proximity to bus, train and ferry stations reduces the need for private vehicle use, further reducing carbon emissions

Water

- Low-flow tapware for all fixtures both inside and around the fitout

Materials

- Fully modular furniture allowing easy relocation and modification of work spaces

Land Use and Ecology

- Reuse of an existing heritage-listed and Green Star rated building

Emissions

- No ozone depleting materials were used anywhere in the fitout.

GREEN STAR®

STEEL CREDIT HAS CHANGED

The Green Building Council of Australia has recently changed the Steel Credit criteria used in all Green Star® rating tools. The new revised 'Steel' credit recognises innovative and environmentally responsible steel production and fabrication methods.

Recognition* is given to specific products and practices including:

- Use of higher strength structural steels, such as OneSteel Australian Tube Mill's C450PLUS™ and OneSteel Whyalla's 350 MPa hot rolled sections
- Sourcing of reinforcing steel made using an energy reducing process such as Polymer Injection Technology as used at OneSteel Market Mill Electric Arc Furnace sites
- Employing off-site optimal fabrication techniques for reinforcing steel such as 500PLUS® BAMTEC® available from OneSteel Reinforcing.

As the leading supplier of structural and reinforcing steel in Australia, OneSteel is setting new standards in the sustainable production, use and recycling of construction steel.

So before you start designing, talk to OneSteel about achieving maximum Steel Credit points in your Green Star® submission.



To find out more on OneSteel's sustainability and green building initiatives contact 1800 1STEEL or visit www.onesteel.sustainability-report.com.au

*Refer to www.gbca.org.au for full details of the revised steel credit.

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onesteel



1 BLIGH STREET



1 Bligh Street is the next generation of high-performing sustainable office spaces, with a 6 Star Green Star - Office Design v2 rating and a number of innovative sustainability strategies that are 'firsts' in the market place.

"Every aspect of 1 Bligh Street - from its double skin façade (an Australian high-rise first) to the unique, full building height, naturally ventilated atrium - is designed to optimise sustainability and tenant amenity throughout the 28 level development," says DEXUS Property Group Chief Executive Officer, Victor Hoog Antink.

1 Bligh Street has a 5 star NABERS Energy commitment which is the highest achievable energy rating possible in Australia, and is also aiming to achieve a 6 Star Green Star - Office As Built rating in 2011.

A NEW FACE IN TOWN

The development's double skin façade system is a major contributor to the 6 Star Green Star rating. This naturally-ventilated glass façade was designed to optimise occupant amenity. Views are maintained, with 70 per cent of the Net Lettable Area (NLA) within eight metres of either the façade or the atrium, while providing optimum daylight entry and solar control. The components of the façade system include a double-glazed inner skin of high-performance glass and an outer skin of clear glass separated by an accessible cavity which is naturally ventilated and contains an automated blind.

The unique façade allows 45 per cent of the office NLA to achieve high daylight levels, reducing the need for artificial lighting. This, combined with reduced heat loads, helps keep energy consumption to a minimum, and enables energy performance to achieve the 5 Star NABERS Energy requirements, with a 42 per cent carbon dioxide reduction when compared to a similar-sized conventional office tower.

SUPER COOL

The design of 1 Bligh Street incorporates an innovative hybrid tri-generation arrangement that uses gas and solar energy to generate cooling, heating and electricity. An array of 500m² of roof-mounted solar panels provides free cooling for the building, and in combination with the large trigeneration unit, reduces the load on grid power by more than 27 per cent.

MINIMISING MATERIALS

Green Star rewards building projects that both minimise materials wastage and select environmentally-preferable materials. In 1 Bligh Street, the specially-formulated high-strength concrete used, as well as the design which reduces the number of columns required, has in turn reduced the amount of concrete needed. →

PROJECT DATA

Location 1 Bligh Street, Sydney	Architects Architectus and Ingenhoven Architects	Electrical/mechanical /fire/hydraulics/structural Arup	
Owners DEXUS Property Group, DEXUS Wholesale Property Fund(DWPF) and Cbus Property	Design and construction contractor Grocon	Lighting services mySmart CTI	
Total Floor Area 42,853m ² NLA	ESD consultant Cundall Johnson	Hydraulic and fire services consultant Steve Paul and Partners	
		Structural consultant Enstruct Group	

In addition, 20 per cent of all aggregate used in the concrete is recycled, and around 41 per cent of all cement required for the structure was replaced with industrial waste by-products. ninety per cent of the steel used has a recycled content greater than 50 per cent, and the project team worked to ensure that all timber used is either FSC Certified or re-used from a previous application.

Grocon Chief Executive Officer, Daniel Grollo, who was an original board member of the Green Building Council of Australia, has said that "the use of unique high-strength concrete with a lower cement content means there is 5,768 tonnes less of carbon dioxide being released into the atmosphere and, to date, we have recycled 37,000 tonnes or 94 per cent of all construction waste produced on the project."

WATER-WISE

1 Bligh Street is the first building to use blackwater recycling in a high-rise office building in Sydney. Waste water is treated via a central blackwater treatment plant and recycled for toilet flushing and make-up water to the cooling towers. This will save approximately 100,000 litres of water a day which, when annualised, is equivalent to an Olympic swimming pool every two weeks.

In addition, a 65,000 litre rainwater harvest tank recycles rainwater for irrigation. Water-efficient appliances are used throughout, using 3 star WELS-rated showerheads, 5 star-rated hand wash basin taps and 4 star-rated toilets. All water use is monitored via the building management system. As a result of these systems being implemented, reliance on municipal potable water sources has been reduced by more than 90 per cent.

TOTAL INNOVATION

The team behind 1 Bligh Street was awarded five innovation points (out of a possible five) from the GBCA for setting new innovation benchmarks in Australia. These points were awarded for:

- Naturally-ventilated double skin façade development and the evaluation of improved amenity for the occupants in relation to view, glare and thermal comfort
- Hybrid trigeneration using gas-fired power generation, absorption chillers and solar cooling to reduce peak and annual energy consumption
- The tempered environment – applying a different set of comfort criteria to break-out spaces and the main lobby entrance of the building, and maintaining year-round comfort conditions using recycled heat and relief air

- Full height naturally-ventilated atrium that encourages occupant wellbeing and satisfaction
- Greatly reduced building embodied energy via the use of cement replacement technologies in high-strength concrete without significantly affecting the construction program and structural climbing cycles.

"Achieving five innovation points out of a possible five reflects 1 Bligh Street's position as a truly ground-breaking green building," says the GBCA's Chief Executive, Romilly Madew. "This building will provide a new benchmark for sustainable office space in Australia."

ESD INITIATIVES FEATURED IN THE PROJECT

Indoor Environment Quality

- Full height, naturally-ventilated internal atrium
- Double skin column-free façade system, promoting maximum daylight and views
- Low VOC paints, sealants, adhesives and carpets are used throughout the building to improve air quality

Energy

- Roof-top solar thermal collectors which inject high-temperature energy into a solar cooling system; provides enough energy to allow 100 per cent more fresh air to be pumped through the building without any additional running costs
- Low-temperature VAV hybrid with chilled beam within naturally-ventilated spaces
- High-efficiency lighting
- Perimeter lighting controlled by automatic photocell control
- Timed lighting switches with manual override

Transport

- 270 bicycle spaces with accompanying locker and shower facilities

Water

- The first use of blackwater recycling in a high-rise office building in Sydney that will save 100,000 litres of water a day, equivalent to an Olympic swimming pool every two weeks
- Rainwater recycling for irrigation of plants on rooftop

Land Use and Ecology

- Glazed and naturally-ventilated wintergarden space at ground floor level.

Sustainability: where it counts

Merchant Square, London

Carbon emission reductions in excess of 20% achieved by innovative distributed sitewide trigeneration system.

Supreme Court, Wellington

High quality interior comfort achieved by use of hybrid VAV air conditioning and natural ventilation arrangement. NDY lighting design achieves Commendation in 2010 IES Lighting Design Awards.

National Circuit, Canberra

Office building achieves 5 star NABERS energy rating without Green Power via cost-effective low temperature VAV solution.

Batman Street, West Melbourne

First refurbished building to achieve 5 star certification under all three Green Star office rating tools.



As engineering consultants, we deliver sustainability as an everyday practice, not just an idea. See how by downloading a free copy of our *Lifecycle* magazine at www.ndy.com





115 BATMAN ST WEST MELBOURNE

115 Batman Street is the first refurbished building to achieve certification under all three Green Star Office rating tools. The project, which has transformed a derelict factory into a state-of-the-art multi-storey office block, achieved a 5 Star Green Star rating under the Office Design and As Built v2 rating tools, as well as a 5 Star Green Star - Office Interiors v1.1 rating. The building now accommodates the entire Melbourne team of Norman Disney & Young, and is a strong symbol of the company's commitment to a sustainable future.

"In designing and constructing 115 Batman Street, it was very important for NDY to demonstrate that we practice what we preach," says NDY's Chief Executive Officer, Ian Hopkins. "115 Batman Street displays our commitment to sustainability and clearly demonstrates our Green Star credentials."

SMART DESIGN

115 Batman Street was designed and built during one of the driest periods on record for Melbourne, so it comes as no surprise that water efficiency was a high priority. The building features a 15,000 litre rainwater tank in the basement, which collects runoff from the roof and provides water for toilet flushing. Fixtures and fittings were installed to meet the highest water rating possible at the time of design.

Energy efficiency was another key focus, with the project team placing an emphasis on smart design in order to achieve this goal. In practice, this meant forgoing technology such as onsite power generation, which could not be justified for the size of the project, and instead focusing on passive design features such as double glazing and energy-efficient lighting. The evidence so far indicates the approach is paying off, with the building currently tracking on a 5 Star NABERS rating.

OVERCOMING 'THE CONTRACTOR BLUES'

The biggest Green Star challenge faced by the project team was working with some of the contractors and subcontractors who were not familiar with the rating tools and so did not understand the importance of accurate documentation or the significance of achieving the rating.

"To overcome this problem we conducted workshops to educate our contractors, provided them with documentation templates, and gave them all the assistance they required," explains Stuart Fowler, NDY's Director in Charge (Melbourne). "This helped to track our progress and ensure that everything was properly documented."

PROJECT DATA

Location 115 Batman Street, West Melbourne	Architect E+ Architecture
Size 2,130m ² NLA	Main contractor Construction Engineering Australia
Project team Norman Disney & Young	Structural engineers Winward Structures
	Cost consultants RLB

green building council australia



green building council australia



green building council australia



"It is important to ensure that your contractors have the capacity and capability to achieve your requirements when pursuing a Green Star rating," Fowler adds.

CHILLED BEAMS

One sustainability initiative making work more comfortable for employees is the passive chilled beam system used for ground, first and second floor air conditioning. Chilled beam technology works via convective cooling, where warm air rises and is cooled by the chilled beam and then falls back to the floor. The process is more efficient than air-based cooling in drier climates and also eliminates the effects of draught that may occur with conventional air conditioning systems.

According to Evalin Ling, Associate at NDY and the ESD Consultant for the project, the system ensures the space is comfortable and operates well in extreme conditions. "During Melbourne's hot spells where we experienced several 40°C plus days in a row, the system coped well and design conditions were maintained in the area."

Other features which are helping to improve working conditions include large windows which allow an abundance of natural light to penetrate the space and provide access to external views. A series of photo-electric and motion sensors ensure that artificial lighting is only used when required. This reduces energy consumption and provides a comfortable environment for employees.

BENEFITS BEYOND THE BUILDING

Building green is a clear expression of commitment to the environment. Increasingly, people around the world perceive green buildings as modern, ethical and proactive – and companies associated with green buildings benefit from these perceptions through increased brand equity and staff satisfaction.

NDY recognises this, with Ian Hopkins explaining that "staff are proud of the building, as it is a more comfortable environment when compared with our previous tenancy. The measures we have provided will help deliver higher employee satisfaction."

"Sustainable engineering is a fundamental component of NDY's service to our clients. The multiple 5 Star Green Star ratings achieved by 115 Batman Street is a clear demonstration of our ability to deliver sustainable solutions."

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- Comprehensive building management system to facilitate fine tuning and optimisation of energy consumption

Indoor Environment Quality

- Natural light and external views
- Fresh air supplied at 2 litres/m², double the minimum code requirement
- High efficiency luminaires

Energy

- Energy-efficient lighting and lighting zoning
- High performance double-glazing
- Solar-heated domestic hot water system
- High efficiency gas-fired boiler

Transport

- Bicycle facilities with racks, showers and lockers installed

Water

- Low-flow fixtures and fittings, with toilets connected to the rainwater tank
- Wetted pad heat rejection system for chiller to optimise energy consumption, minimise water consumption and eliminate legionella risk

Materials

- Retention of existing external brick walls to provide high thermal inertia
- All furniture is either certified by a recognised product certification scheme or reused from NDY's previous tenancy

Land Use and Ecology

- Refurbishment project – reuse of land

Emissions

- All insulation has zero ODP chemicals in composition and manufacture
- The first project in Australia to have Isoboard to comply with the credit.



Trinita is a 28,000 square metre office campus located in Macquarie Park, Sydney. The project, owned and developed by Stockland, integrates three high-quality buildings into a shared environment of landscaped outdoor public space.

TRINITA



The entire campus is in the process of achieving Green Star certification, with buildings I and II having been awarded 5 Star Green Star ratings under the Green Star – Office As Built v2 rating tool in 2009. Building III is also targeting a 5 Star – Office As Built rating.

Trinita has set a new benchmark for quality office space in Macquarie Park says Stockland's General Manager for Development & Design, Commercial Property, Stephen Bull. "The campus encourages and enables outstanding corporate responsibility, sustainability and business performance through leading environmental initiatives," he says.

THE GREEN STAR PREMIUM

In 2007, demonstrating its commitment to corporate responsibility and sustainability, Stockland signed up to the Green Business Partnership with the GBCA. The Trinita development was in a unique position where the contract had been priced without Green Star initiatives and then was 'enhanced' with Green Star initiatives. In doing so, Stockland has provided an accurate breakdown of the Green Star cost premium compared to an equivalent office project.

To raise the Trinita buildings up to Green Star standards, the project team worked with the contractor to identify which extra features would be needed and the additional costs they would incur. These sustainability features increased costs by 2.2 per cent, with the bulk of the 'green premium' being spent on further commissioning, metering and more efficient electric lighting.

For a minimal increase in costs, the project team was able to deliver an entire 5 Star Green Star business campus – demonstrating that 5 Star Green Star buildings can be delivered without exceeding traditional commercial premiums.

PROJECT DATA

Location 39 Delhi Road, Maquarie Park, Sydney	Architect Morris Bray	Acoustic consultant Acoustic Logic
Size 28,000m ² GFA	Structural/Civil engineer Enstruct	Landscaping consultant Design Landscapes
Owner/Developer Stockland	Building services engineer VOS Group	Building surveyor Survey 21
Project manager Arben Management	Quantity surveyor Rider Levett Bucknell	Main contractor Boulderstone



This exceeds the initial intention of achieving 4 Star Green Star ratings for the entire campus. 4 Star Green Star benchmarks were chosen to allow for a significant 'buffer'. However, as the project has achieved almost every Green Star point it targeted, 5 Star ratings have been the result.

Michael Yiend, Development Manager at Stockland, explains: "It is amazing what can be achieved when Stockland works with our project teams, builders and customers. We are very proud of Trinita's outcomes."

NABERS 5 STAR

The performance benefits of Trinita's sustainability features are obvious: Building I has achieved a 5 star NABERS Energy and Water rating, and while buildings II and III have not yet been operational for the full year required to achieve ratings, Stockland is anticipating an equally impressive result.

The 5 star NABERS result represents a 50 per cent reduction in energy use over a standard 2.5 star NABERS Energy-rated building and a 60 per cent reduction in water use over a standard 2.5 star NABERS Water-rated building.

This translates into a saving of more than \$10 per square metre per annum in reduced energy costs and over \$1.50 per square metre each year in reduced water costs. This will translate into savings on energy and water costs for Trinita's tenants.

GREEN STAR TENANTS

Research has shown that there are real advantages for businesses operating in Green Star buildings – and these benefits extend well beyond the carbon footprint. Tenants are increasingly demanding sustainable buildings to 'future proof' their businesses against escalating energy and water prices, to attract and retain top talent, and to demonstrate that corporate social responsibility starts at home.

Trinita has a range of features which benefit both tenants and the environment. All buildings within the campus feature 'floor flexibility' enabling tenants to split and isolate half floors down to 700 square metres. The campus also features easy public transport access, bicycle and change-room facilities, together with an emphasis on excellent indoor environment quality.

With such a sustainability showcase on offer, Stockland was able to lease Trinita earlier than industry practice – which meant the campus reached 100 per cent occupancy sooner. The fact that other buildings without Green Star ratings around the Trinita campus still lie vacant speaks volumes about the shift to sustainability.

In a vote of confidence in the building, Boulderstone, the main contractor on the project, has moved in as the major tenant. "We are very pleased to be a major tenant in North Ryde's first 5 Star Green Star office building, as it represents Boulderstone's commitment to creating what matters in a sustainable way," says Boulderstone's NSW General Manager, David Lougher.

CSR is another tenant that chose Trinita due to its sustainability characteristics. The company recently achieved a 5 Star Green Star certification for its own fitout within Trinita under the Office Interiors v1.1 rating tool, featured on page 60.

"We are proud of our achievements at Trinita," Stockland's Stephen Bull says. "Achieving the Green Star rating is a testament to our ongoing relationship with tenants and corporate commitment to the environment."

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- Energy and water sub-metering to monitor consumption and check for leaks
- 80 per cent of construction waste either reused or recycled

Indoor Environment Quality

- High levels of natural daylight and access to external views
- Low-VOC paints and carpets
- Tenant exhaust risers to remove pollutants from printing and photocopy areas

Energy

- High performance full height double glazing
- Energy-efficient T5 lighting
- Motion sensors for out-of-hours lighting control
- Lighting in 100m² zones with switches clearly labelled and accessible by building occupants

Water

- On site rainwater collection for landscape irrigation
- Water-efficient cooling towers

Materials

- On site storage for tenant office waste and recycling.



CSR

When CSR, one of Australia's leading producers of energy-efficient materials, moved into its new Green Star premises in January 2010, the company was able to provide a 'bricks and mortar' demonstration of its commitment to sustainability.

TRINITY PROJECT



CSR's Trinity Project was awarded a 5 Star Green Star – Office Interiors v1.1 rating for the fitout of its new offices located in the Trinity III building in the Stockland Trinity campus at North Ryde. Stockland has registered the Trinity III building for a Green Star – Office As Built v2 rating, which stands alongside the 5 Star Green Star – Office As Built v2 ratings it achieved for its campus buildings I and II.

"The CSR Trinity Project is the first to achieve a 5 Star Green Star – Office Interiors v1.1 rating in the first round," explains Chief Executive of the Green Building Council of Australia, Romilly Madew.

"This was the result of a high quality submission, and the CSR Trinity Project joins just a handful of other projects that have achieved their Green Star ratings in the first round."

DRIVING CULTURAL CHANGE

CSR's new development presented the unique opportunity to "bring together all our brands, with each of their innovative features and unique contributions, and apply them to create one outstanding building that says as much about our brands and products as it does about our company culture and values" says Andrew MacKenzie, CSR's General Manager Property.

CSR product is used throughout the Trinity III building, as well as in the fitout of the CSR tenancy, and includes Viridian Glass, Bradford Insulation, Gyprock Plasterboard, Cemintel Fibre Cement, Fricker Ceiling Systems, Hebel Aerated Concrete, and Rockcore and Alturi Panel Systems.

The company's vision for its new headquarters was for a sustainable workplace that encouraged innovation and collaboration between business units, and provided up-to-the-minute facilities and technology.

PROJECT DATA

Location
Building III, Triniti Business Campus, 39 Delhi Road, Macquarie Park, Sydney

Tenant/Client
CSR

Total Floor Area
6486m² NLA

Project manager and architect
Colliers International

Building services engineer
Floth Pty Ltd

Acoustic consultant
Acoustic Logic Consultants

Main contractor
FDC Construction & Fitout Pty Ltd

Planning
Vic Lilli & Partners / Ryde City Council

Cost consultants
RLB



According to CSR's Chief Executive Officer of Building Products and Aluminium Division, Rob Sindel, the Green Star certification, together with CSR's commitment to the environment, "helps us to attract good employees into the organisation and reflects CSR's desire to improve our safety, health and environmental performance.

"The standards achieved through the fitout have driven cultural change within the organisation. Our energy consumption costs are down, our staff have better breakout amenities and there is a much better level of communication with our new open plan working environment," he says.

INNOVATIVE IDEAS

CSR's Trinity Project was awarded two innovation points for environmental design initiatives. One innovation point was awarded for the inclusion of internal stairs, which have been designed to reduce the environmental impact of the building and improve the indoor environmental quality of the fitout.

A further innovation point was awarded for the acoustic design initiative, which features Ecophon floating acoustic panels for optimal acoustic performance. When combined with education and planning of the office space, the acoustic panels deliver a better indoor environment quality for workers.

Smart design features such as energy-efficient lighting controlled by time switches, movement sensors and perimeter sensors, and use of LED lighting for the staircase and the sky signage will all contribute significantly to lower energy usage and a smaller carbon footprint.

CLEARING THE AIR

The indoor environment quality of the office space was also carefully considered, with the placement of workspaces designed to optimise the provision of natural light through floor to ceiling glazing.

The majority of workstations are positioned within eight metres of the windows to allow long distance views and a visual connection to the outdoors. All staff members – including management – are in open plan workspaces which encourage collaboration.

The indoor environment quality is further enhanced through indoor plants, the use of materials with low or no volatile organic compounds and separately enclosed and exhausted print and photocopy rooms.

EMBRACING THE THREE RS

CSR has embraced the 'three Rs' of 'reduce, reuse, recycle' – for example, the number of printers, copiers, scanners and fax machines has been reduced from 129 to 22 machines; 17 of which are large multi-function machines located in central utility rooms.

These initiatives, together with the smart green building features, will deliver a carbon emissions reduction of around 50 per cent in the first year.

With the move to more sustainable headquarters, CSR "welcomed a new phase of our long history that will enable better business performance and contribute further to environmental and community sustainability," Andrew MacKenzie says.



HOME HQ NORTH SHORE



The new Home HQ household retail centre on Sydney's North Shore was awarded the first rating under the Green Star - Retail Centre v1 tool. Constructed upon the former Willoughby Council Depot site, the project achieved a 4 Star Green Star rating representing 'Best Practice' environmental standards for its conversion of the existing heritage-listed industrial warehouse.

Michael Winnem, Development Director at Charter Hall, says: "Home HQ North Shore is one of our flagship retail developments. It demonstrates our commitment to developing sustainable projects that are market leading."

REUSE, REGENERATE, REVITALISE

The adaptive reuse, regeneration and revitalisation of the Home HQ North Shore site to best practice environmental standards has extended the life of the former warehouse structure for the benefit of the local community, and contributed to the amenity of the Lower North Shore.

A number of elements in the structure, framing and building fabric were heritage-listed, which only permitted the adaptive reuse of the building. This meant that the redevelopment of the project contained two key challenges. The first was to design a modern, functional household retail centre within and around a heritage-listed building and the second was to integrate sustainability features into the project to ensure the new centre received a Green Star rating.

Innovative use of structural and façade design ensured that the majority of steel work on the site was reused. This approach had a dual benefit of using the heritage-listed steel gables, cranes and roof trusses as a feature of the centre, while also picking up points within the Green Star Materials category. The layout was then tailored to the space, with tenancies configured around the existing column layout to preserve materials and to make best use of the building's unique character.

CAPITALISING ON CHARACTER

Internally, the building was refurbished and extended to include a central void over three levels. "The central void has been extremely successful both from a tenant's and a customer's perspective", says Michael Winnem. "It provides an opportunity to showcase the heritage features of the existing building while providing customers with view lines to the centre's retailers."

The common areas of Home HQ are passively-ventilated with spill air from the tenancies, which in turn are serviced by a water- and energy-efficient central air-cooled mechanical system which is controlled by building management. This ensures that consistent and comfortable conditions are provided for shoppers while reducing operational energy requirements. The design has resulted in the centre exceeding Green Star thermal comfort design benchmarks.



PROJECT DATA

Location

1a Frederick Street,
Artarmon

Total Floor Area

26,495 2,200m² NLA

Client

Charter Hall Group

Development manager

Charter Hall

Builder and Green Star manager

St Hilliers Contracting

Architect

Rice Daubney

Structural/Civil engineer

Robert Bird Group

Building services engineers

Donnelly Simpson Cleary

Mechanical and BMS

MW Zander

Hydraulics engineers

Nisbet & Durney

Fire engineers

Precision Fire

Electrical engineers

KLM

Lifts and escalators engineers

Kone

Traffic engineer

GTA

Acoustic consultant

Acoustic Logic

Landscaping consultant

POD

ESD modelling

Cundall and Team Catalyst

green building council australia



Retail Centre Design v1 2009

GREEN SCREENS

Home HQ was awarded one Green Star innovation point for the installation of dedicated Ecologically Sustainable Design (ESD) screens in the central information station. The screens help raise awareness of the sustainable design credentials of the centre, as well as providing information to visitors on how they can reduce their own ecological footprints.

In addition, interactive panels with rolling displays show the centre's energy and water consumption. Once Home HQ has been operational for 12 months, these rolling displays will be plotted against historical water and energy use data so that visitors can compare current and past usage.

SUSTAINABILITY FOR JUST ONE PER CENT

Perhaps the project team's greatest challenge was that the Green Star - Retail Centre v1 tool was launched after the design phase for Home HQ was complete. Due to the differences between the new tool and the Shopping Centre PILOT to which Home HQ was first designed, the project team expanded its focus beyond energy and water efficiency to take a more holistic approach to Green Star.

This meant incorporating a number of retrospective changes to the original design while the project was in the construction phase, and some very intensive efforts in both redesign and sub-contractor management. Despite these changes, the total cost for the Green Star component, over and above a non-Green Star-rated project, was less than one per cent of contract value.

And according to Alicia Maynard, Green Star Accredited Professional at St Hilliers, the Green Star process "helped enforce a robust document management system for co-ordination, collation and delivery of the project to the ESD credentials. The communication across the design team was enhanced, especially due to the changes in rating tool/ESD requirements and the design changes that occurred as a result."

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- Electronic Building Management System (BMS)
- Diligent waste management practices diverted 14,000 tonnes of construction and demolition waste from landfill to recycling

Indoor Environment Quality

- High level of thermal comfort is achieved for 60 per cent of the nominated area
- Air change effectiveness of at least 95 per cent of the nominated area

Transport

- Accessible by public transport
- 60 bike racks for commuters

Water

- A 330,000 litre rainwater tank enables rainwater harvesting
- An air-cooled mechanical system runs by filtering air through vents, negating the use for water in the cooling tower
- No water-based heat rejection systems are provided as the system is a centralised air-cooled chiller.

Materials

- Designed for disassembly
- Over 60 per cent of steel used for construction was recycled steel.

Land Use and Ecology

- Site is located on land previously developed but under-utilised
- Enhancement of the previous existing state of the native vegetation

Emissions

- All HVAC refrigerants have an Ozone Depleting Potential (ODP) of zero
- No direct light beam, generated from within the building or outside of the building boundary, is directed at any point in the sky.

Innova21, the University of Adelaide's new building for the Faculty of Engineering, Computer & Mathematical Sciences, was awarded a 6 Star Green Star - Education v1 rating in May 2010. This makes it the first project in Australia to achieve a 6 Star Green Star - Education v1 rating, as well as the first university in Australia to achieve a rating under the Green Star - Education v1 tool.

INNOVA 21



The eight storey building incorporates a range of environmentally-sustainable features complementing the design that helped the University achieve its rating as a world leader.

Professor James McWha, Vice Chancellor of the University of Adelaide says that "achieving a 6 Star Green Star rating demonstrates the University of Adelaide's environmental aspirations and commitment to world leadership in providing sustainable learning spaces for our students."

COOL STRUCTURES

Innova21 boasts an array of features which will improve learning outcomes for students and reduce the environmental impact of the building.

One of these features is the project's innovative use of the building's foundation piles for geothermal energy storage. This system uses the thermal mass of the earth beneath the building to provide an efficient source of cooling for the building after hours.

The system involves reticulating chilled water, produced by the building's tri-generation plant, through pipework embedded within the foundations. This cools the ground, and in effect enables the building to 'store' energy to cool areas, such as data rooms, after hours, when the tri-generation plant is turned off. Cooling the building in this manner is more efficient as it allows most cooling potential to be produced using the tri-generation plant's absorption chiller, which uses waste heat to produce chilled water, rather than less efficient electric chillers.

The use of geothermal energy storage is an Australian first and is calculated to reduce the building's cooling related CO2 emissions by 58 per cent.

PROJECT DATA

Location North Terrace Campus, Adelaide	Architect and interior designer Design Inc	Structural consultant Aurecon	  Education Design v1 2010
Size 14,497m ² GFA	Services engineers Umow Lai and Bestec	Landscape architect Outlines	
Owner University of Adelaide	ESD consultant Umow Lai	Quantity surveyor Currie and Brown	

AN ENERGY ISLAND

The natural gas-fired trigeneration plant – which supplies all of Innova21's electricity, heating and cooling requirements and will help deliver a 60.3 per cent reduction in peak electrical demand – is another innovative feature. Due to local planning laws, the plant has been designed to run in island mode, which means it is isolated from the grid. This posed a number of design challenges but was deemed worthwhile due to the significant operational, environmental and life-cycle savings offered by the plant.

Trigeneration installations typically convert around 75 to 85 per cent of the energy source into electrical power and useful heat. This compares favourably with conventional power generation which has a typical delivered energy efficiency of only around 30 to 35 per cent. This is particularly important in South Australia where the majority of power is generated by coal-fired power plants.

Costs for the plant were further offset by reducing the need for traditional plant infrastructure such as back-up generators and separate boilers and chilling units.

DESIGNED TO EDUCATE

Innova21 has also been designed to be used as a learning resource itself. As the building will be used primarily to teach engineering students, it was decided that one measure of the building's effectiveness would be how well it could further the understanding of those students. To achieve this, a secondary building management system (BMS) was designed and installed that allows students to interact directly with the building's controls and operations function, while keeping their actions separate from the primary BMS. This enhances students' understanding of sustainable design and allows them to gain 'real world' experience in modifying building controls without adversely affecting the running of the building.



● Photography Dianna Snape

SUSTAINABILITY ALL ROUNDER

Jeremy Kwan, Senior Project Director at the University of Adelaide, reports that "Green Star requirements were integrated into all elements of design, construction and building operation."

Other sustainability features of Innova21 include 100 per cent fresh air delivery, which has resulted in visitors and regular building users alike commenting on the high air quality, a 500,000L water tank which harvests water from around the campus for use in the building's cooling towers and toilets, and high levels of recycled content incorporated into construction materials.

The project team initially planned to install a blackwater treatment system, however investigation showed that it was better suited to a campus-wide application. As such, the campus has now entered into an agreement with SA Water to connect the campus to the Glenelg Adelaide Pipeline, a commercial treatment scheme.

According to Kwan, "occupants are overwhelming in their support of the Innova21 building and the goals and aspirations we set out to achieve. We are now promoting our achievements through campus tours, university open days and through public broadcast media releases. We believe our 6 Star Green Star rating will benefit University of Adelaide students and help create a better environment."

ESD INITIATIVES FEATURED IN THE PROJECT

Indoor Environment Quality

- Underfloor air distribution system using 100 per cent fresh air
- Optimised daylight and views to the external environment

Energy

- BATISO hydronic slab cooling to maximise the thermal mass and reduce energy consumption
- Thermal chimneys, use of thermal buffer spaces
- Heat rejection from the computer server rooms via geothermal loops incorporated into the basement diaphragm wall
- Low E double glazed curtain wall
- Programmable DALI lighting system
- Provision for wind turbines in the building's structure

Materials

- Materials and furniture, fittings and equipment were selected for their low environmental impact, and minimal PVC, VOC and formaldehyde.



LOT 12 TRADECOAST CENTRAL

TradeCoast Central's new industrial facility at Lot 12 in Brisbane's Eagle Farm will ensure that its owners and employees benefit from a cleaner, greener work place, and the local community and the environment will too.

Lot 12 TradeCoast Central became the first certified Green Star Industrial facility in Australia when it achieved a 4 Star Green Star – Industrial PILOT rating in April 2010. The TradeCoast Central Industrial Precinct is on the former Brisbane Airport site adjacent to the Gateway Arterial Motorway in the suburb of Eagle Farm. It is a fully master-planned industrial community with special emphasis on sustainable development.

“From the outset, the TradeCoast Central estate has had a strong environmental focus. The early development of our Precinct ESD Code has enabled us to implement and improve on the original sustainable initiatives in every new building,” says TradeCoast Central’s Project Director, Cassie Eivers.

“Being involved in the Green Star – Industrial PILOT has been a challenging but rewarding experience; our consultants and contractors have learnt a lot and the support from the building occupier has been overwhelming. We hope the introduction of the Industrial rating tool will see more new projects within the estate become formally certified,” Eivers adds.

PROJECT DATA

Location

Lot 12, 65 Schneider Road, TradeCoast Central, Brisbane

Applicant

TradeCoast Central Pty Ltd

Total Floor Area

5,632m² GFA

ESD consultant

Ecolateral

Architect

Husband Architects

Civil engineer/Structural

Karamisheff Nagel and Morgan Consulting Engineers

Building services engineer

Cair, Riverside and BSHD

Quantity surveyor

Mitchell Brandtman

Acoustic consultant

MWA Environmental

Landscaping consultant

Yurrah

Building surveyor

Building Surveying Professionals

Main contractor

McNab Contractors

Local planning authority

Brisbane City Council

green building council australia



Industrial PILOT 2010

SMART SOLUTIONS

Lot 12 TradeCoast Central’s concrete and steel-framed two storey building, featuring an industrial factory, workshop and office space, incorporates some of the key principles of good passive design to achieve energy and greenhouse gas savings. Energy efficiency features such as T5 lighting with motion and photoelectric (PE) sensors are provided to office areas, and the warehouse area features constant-wattage ballasts with halogen (HID) lamps. Extensive landscaped grounds, secure bicycle storage racks and common breakout areas enhance the work experience for staff, providing better social and environmental outcomes.

INNOVATION PLUS

New developments can place additional demands on public infrastructure and the local environment. Lot 12 TradeCoast Central achieved an innovation point for its Sewer Discharge Management system which grinds the effluent to reduce the volume output to sewer, and the timing of the discharge is controlled and monitored to ensure that all releases to the municipal sewer occur during off-peak periods. This effectively reduces the risk of wastewater overflows from the municipal system into the surrounding environment.

WATER WISE

Smart fittings and fixtures include the ‘Showerguard’ system, which restricts the flow of hot water and provides significant savings. Each shower has the potential to save many thousands of litres of water every year, when compared to non-efficient shower heads, and the combined benefits of less waste water and reduced power required to heat the water leads to a lessened environmental impact.

The project has also invested in a shared, precinct non-potable water storage and distribution system, which gained them another innovation point for environmental design initiatives. The system reduces potable water consumption by 80 per cent – the equivalent of more than 10,000 litres a day – and the only potable water used within the precinct is for kitchens, showers and hand basins. Non-potable water is sourced from local council water treatment plants, which guarantee a weekly supply of 2,800 kilolitres per week.

GREEN SCENE

As part of this unique environmental precinct, Lot 12 TradeCoast Central will be connected to a number of precinct-wide services adhering to strict environmental standards. Services include a precinct supply of non-potable water, recycled irrigation water and fire system water. The precinct operates a central building management system which monitors the energy and water consumption of all buildings within the precinct through a network of smart energy and water meters. Building occupants have access to this through the precinct’s intranet system. As part of the Environmental Design Guidelines, a precinct-wide construction and operational environmental management plan is also in place.

ESD Consultant on the project, John Moynihan from Ecolateral, said: “The industrial building sector is an area where substantial savings can be made in terms of energy, greenhouse gas and water. At the same time, industrial buildings usually house a number of diverse functions under the one roof, making it challenging to track environmental performance. The Green Star - Industrial v1 tool provides clarity and guidance during the design phase of industrial buildings to ensure owners and operators get a good mix of economic and environmental outcomes.”



MELBOURNE

CONVENTION AND EXHIBITION CENTRE

Two years since the Melbourne Convention and Exhibition Centre reached practical completion, the owners have captured new markets, and future-proofed their assets against changes in government regulation, market expectations and climate.



PROJECT DATA

Location Docklands Melbourne	Green Star Accredited Professional Advanced Environmental	Building services engineer Lincolne Scott
Size 59,515m ² GFA	Project manager Multiplex	Landscaping consultant Aspect
Owner Plenary Group	Architect NWHB	Main contractor Multiplex



The MCEC became the first convention centre in the world to achieve a 6 Star Green Star rating in 2008.

The Victorian Government, Plenary Group and all contractors showed far-sighted vision to build the world's greenest convention centre. The Victorian Government commissioned the development of the Green Star – Convention Centre PILOT tool specifically for this project; and subsequently the Green Star – Public Building tool was developed based on this pilot project.

Two years since the MCEC reached practical completion, the owners have captured new markets, and future-proofed their assets against changes in government regulation, market expectations and climate.

The MCEC's 6 Star Green Star rating, combined with its excellent design features, have helped secure Melbourne's reputation as a true global player within the international events arena.

According to the MCEC's Chief Executive, Leigh Harry, "the venue has exceeded everyone's expectations, setting a new world standard with its innovative environmental design features and raising the benchmark to new heights in innovation, technology, imaginative catering and service options. It's humbling to have the feedback we've received to date."

ONE-OF-A-KIND WONDERS

It's easy to understand why the feedback has been so positive. The MCEC boasts a huge array of world-leading sustainability initiatives which still remain one-of-a-kind today.

These include the eye-catching façade, which towers 18 metres high and is constructed of spectrally-selective glass which reduces heat gain. The façade is complemented by the architecturally-inspired shading device, which protects the façade from the harsh summer sun but allows for passive solar heating during the winter months. This delivers sound levels of thermal comfort and reduces the building's energy use, as well as enhancing the overall image of the building.

Other impressive sustainability initiatives include the extensive solar hot water system which generates around 35 per cent of the facility's general hot water requirements, plus the innovative displacement ventilation system, which operates in conjunction with slab heating and cooling in the plenary hall and foyer to provide excellent air quality to building users.

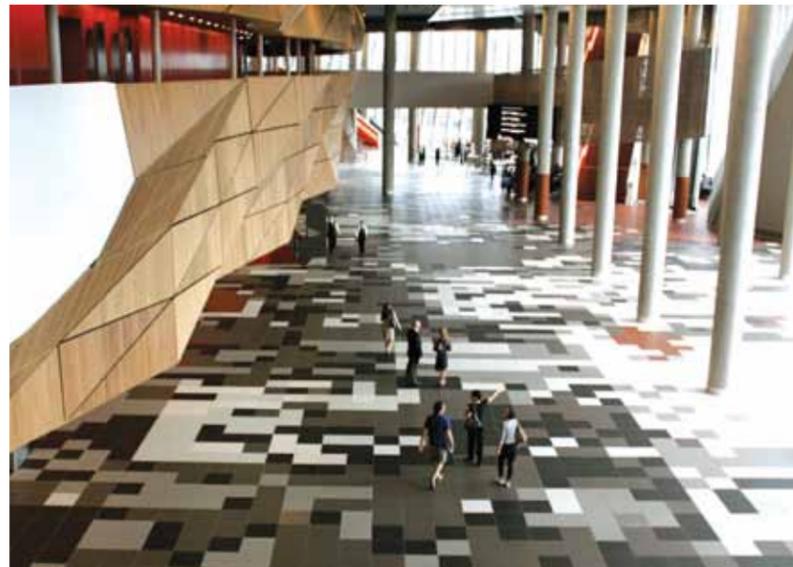


SUSTAINABILITY SELLS SEATS

A growing demand for sustainable meetings, conferences and exhibitions is being driven by companies who recognise that green is good for their brand. According to an October 2009 survey by *Meetings and Conventions* magazine, 56 per cent of conference organisers surveyed enquire about green initiatives when selecting a meeting venue, while another 15 per cent plan to start doing so. Moreover, 51 per cent of respondents said that they had recently increased their focus on green meetings.

At the MCEC, the sustainability features have delivered a marketing dividend, enabling the centre to directly cater to the increasingly important green agendas of event organisers.

According to Professor Robert Lamb, Australian Synchrotron Director, his team were able to secure their bid to hold the 10th International Conference on Synchrotron and Instrumentation because of "Melbourne's acknowledged worldwide reputation as a centre for scientific excellence; having one of the world's latest third generation synchrotrons; and the newly developed state-of-the-art 6 Star Green Star-rated Melbourne Convention Centre." →



GREEN TEAM

To deliver consistent environmental performance from the building, the MCEC has created the M-Green Team. This dedicated team is responsible for implementing new strategies to benchmark and progress MCEC's environmental performance. The team also raises awareness among clients and meeting planners about running sustainable events by providing a whole host of green information and a green event checklist on how to incorporate green solutions into their MCEC-based events.

Banksia Environmental Foundation spokesperson, Owen Probert, says the MCEC team went out of its way to make the Banksia Awards in 2010 an environmental success. "The MCEC was extremely helpful in the sustainable planning of the Awards. Its willingness to measure the waste arising from the night was particularly impressive, as was the option of purchasing 100 per cent green energy for the entire building for the event."

MCEC Front of House Manager and M-Green Team Chairperson, David Howie, says that their job is made easier as "the 6 Star Green Star rating raises community interest and leads to users actively requesting details of the green architectural features."

STRIVING FOR PERFECTION

It's not only clients that are raving about the facility; the MCEC's clever facility managers are also pleased with their building's green technology which allows it to adapt easily with demand, while the building user's guide, developed to Green Star standards, has ensured that all team members have an informed and consistent approach towards building usage.

To maintain optimum performance and deliver the best environmental outcomes, the facility management team regularly tweaks the building's central plant and building systems. In order to understand the impact of these changes, Plenary Group collects data on the facility's operations to establish a baseline from which it can drive improvements. Plenary Group will have enough data by 2011 to produce a reliable baseline which will help to deliver optimal operational performance across the centre's entire events calendar.

At present, the biggest sustainability issue facing the team has been the centre's overwhelming popularity. With the schedule booked solid for the next five years, the team has rarely had the chance to utilise the set-back conditions which reduce energy consumption when the building is not in use. However, you won't hear the team of the MCEC complaining, as this is the sort of problem desired by every major conference and events centre around the world.

GREEN ENHANCES PRESTIGE

A range of international reports have found that green buildings are more likely to attract grants, awards, subsidies and other incentives that demonstrate environmental stewardship, increase energy efficiency and reduce greenhouse gas emissions.

The MCEC's innovation and ingenuity has been rewarded with dozens of awards, including the 2010 Victorian Architecture Medal, the prestigious Banksia Foundation Built Environment Award 2009, the 2010 Australian Construction Achievement Award, as well as recognition by the Design Institute of Australia for its contribution to Victoria's next generation of public amenity.

20:20 HINDSIGHT

With the MCEC now operational for more than two years, would the project team change anything? What challenges would be easier to overcome today?

The key challenge, according to Director of Operations, Chris Connelly, was working with a Green Star rating system still in its infancy. "As a result, our work was unique and pioneering as the rating tool was developed specifically for this project. Since then, the whole Green Star process and assessment tools have become much more sophisticated, with a larger pool of experienced Green Star Accredited Professionals on which to draw, so our challenges were largely about being one of the first projects to apply Green Star to a project – and the first to use the convention centre and public building project rating tool.

"Many of the great sustainability features of the MCEC's design are not easily seen by the building users and are therefore harder to appreciate," Connelly adds.

"Importantly, many of the elements of the Green Star rating are not in themselves complex or difficult to implement, however what the MCEC project did was to implement them in a uniquely-designed building, rather than a simple office block, on a scale not really seen before – and this is what makes the project special."

Australia's first Green Star - Education Design v1 primary school, Peregian Springs State School on the Sunshine Coast, is already reaping the benefit of its sustainability status, attracting the highest pre-enrolment of any school in Queensland.



PEREGIAN SPRINGS STATE SCHOOL



PROJECT DATA

Location

Peregian Springs State School, Yarran Road, Peregian Springs, Sunshine Coast

Total Floor Area
5,643m² GFA

Client

Queensland Department of Education and Training

Project manager

Broad Construction Services (QLD) Pty Ltd

Architect

MBS GrayPuksand and Woodheads

Builder

Broad Construction Services (QLD) Pty Ltd

Green Star Accredited Professional

Floth Sustainable Building Consultants

Civil engineer

Bornhorst and Ward

Structural engineer

Opus International Consultants

Services engineer

Floth Sustainable Building Consultants

Landscape architect

RPS Group (Formerly Conics)

BCA certifier

Bartley Burns

green building council australia



Developed by Aspire Schools, a consortium led by Leighton Contractors and the Commonwealth Bank under the South East Queensland Schools PPP Project program, Peregian Springs is the first of seven schools due to be constructed under the program over the next four years.

The school's 4 Star Green Star rating recognises it as an example of 'best practice' in environmentally sustainable design, and heralds a new era of schools that provide better productivity outcomes for staff and students and better environmental outcomes for our planet.

Principal Gwen Sands says that "it is a pleasure to work in a school which has been built to the highest environmental standards. Studying and working in this facility encourages both our staff and students to act in a more sustainable manner and will help improve learning outcomes for our students."

PASSIVE DESIGN, ACTIVE LEARNING

Peregian Springs has been designed to maximise the natural benefits of its location and to deliver a high level of indoor environment quality to occupants. The school has been oriented to make best use of natural lighting, shading and cross-ventilation. Outside mechanical noise has been minimised in the classrooms by carefully considering the placement of air conditioning units and other equipment. This approach, combined with a sympathetic selection of appropriate building colours, insulating materials and building design, is helping to provide students with an ideal environment for learning.

A VIEW TO A SUSTAINABLE FUTURE

A landmark study of more than 21,000 students in the US found a dramatic correlation between daylight school environments and student performance, including a 20 per cent faster progression in mathematics and a 26 per cent faster progression in reading. In fact, having views out of classroom windows tended to increase performance by 5-10 per cent.

The design of Peregian Springs State School has ensured that its students have access to natural light, fresh air and views. With clever design and larger-than-average windows, 91 per cent of the usable floor area has a view outside, allowing for optimum ventilation and penetration of natural light. The Green Star benchmark of 60 per cent natural light was dramatically exceeded, delivering payoffs for students and staff, and gaining the project team one Green Star innovation point.

LITTLE FOOTPRINTS

The school community of Peregian Springs has committed to minimising its environmental footprint by reducing consumption of natural resources, during both the construction process and the operation of the building.

The school was also designed to reduce its dependence on the mains water supply through the installation of above- and below-ground water tanks. A 65,000 litre underground water tank stores harvested rainwater for use in flushing the toilet facilities throughout the school. This tank is complemented by two above-ground tanks, which are used for irrigation, and the installation of efficient plumbing fixtures throughout the premises.

Furthermore, to ensure that the school doesn't contribute to watercourse pollution of nearby wetlands, bio-retention basins have been installed to control the quantity and quality of stormwater runoff.

A LIVING LABORATORY

Peregian Springs provides its students with a living lesson in sustainability. Displays fitted throughout the school provide up-to-the-minute data on solar power generation, potable water consumption and stormwater treatment. This is a valuable learning resource for students, enabling them to observe first-hand the impact that activities within the school have on the environment. What's more, it is a crucial source of information for the building's managers, ensuring the school's environmental performance matches its impressive design. →

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- Over 80 per cent of the construction waste either reused or recycled

Indoor Environment Quality

- Low VOC paint, adhesives, sealants, carpets and other floor finishes in over 95 per cent of the project

Energy

- 60 per cent reduction in CO₂ resulting in savings of over 200,000kg of CO₂ each year
- Energy-efficient light sources and daylight sensors

Transport

- 160 lockable, under-cover cycle storage spaces
- Dedicated, well-lit and signposted pedestrian routes

Water

- Air-cooled air conditioning systems
- Buildings designed to eliminate the need for fire fighting systems

Materials

- Concrete requirements reduced by 30 per cent through Fly Ash substitution
- All flooring and joinery installed GECA certified

Land Use and Ecology

- No off site exportation of topsoil

Emissions

- All HVAC refrigerants used have an ODP of zero.



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REDFERN

HOUSING REDEVELOPMENT

The Redfern Housing Redevelopment in Sydney was only the second public housing development in Australia to achieve a Green Star rating, and was awarded a 5 Star Green Star rating under the Multi Unit Residential PILOT in 2009.



Representing 'Australian Excellence' in environmentally sustainable design, this project for Housing NSW sets a new standard for social housing developments, and demonstrates that environmentally, economically and socially sustainable outcomes are achievable.

According to the Green Building Council of Australia's Chief Executive, Romilly Madew, the Redfern Housing Redevelopment project is a 'triple bottom line success story'.

"The project team took a holistic approach to the development, and addressed the social sustainability issues alongside the more commonly recognised environmental and economic ones," she says.

Housing Minister Frank Terenzini has said "The 5 Star Green Star rating for the Redfern Housing Redevelopment demonstrates leadership in innovation and design and underscores the NSW Government's commitment to leading the way in best environmental practice."

WHERE COMMUNITY BELONGS

The project involved the demolition of ten existing two and three storey public housing buildings, and the construction of new low-to-medium rise accommodation. The 106 public housing dwellings comprises 66 apartments and 40 townhouses, as well as two community rooms.

The goal of the redevelopment project is to deliver new public housing with a more appropriate mix of housing types that promote a greater level of community within the area. Specifically, the new development will provide more adaptable and accessible housing for aged and disabled members of the community.

The design features an external façade which is both contemporary and sympathetic to the existing semi-detached and historic dwellings in the Redfern area. As a result, the development will be integrated into and enhance the urban landscape.

PROJECT DATA

Location
57-75 Walker Street,
Redfern NSW

Applicant
Housing NSW

Total Floor Area
9,304m² NLA

Project manager
Thinc Projects

**Architect and
landscaping consultant**
LFA Pacific

Structural/civil engineer
Opus International Consultants

Building services engineer
Timar Partnership

Quantity surveyor
Page Kirkland

Acoustic consultant
Day Design

Local planning authority
City of Sydney Council



SMART SAVINGS

Mr Terenzini said that by working with existing and new developments, Housing NSW is ensuring that the asset base will be climate change adaptable, as well as assisting tenants to lower their energy bills and reduce greenhouse gas emissions.

"Housing NSW has been working with tenants to support positive behavioural change to reduce energy use in the home and has also been working to go beyond state government energy targets."

Green initiatives within the Redfern redevelopment, such as rainwater collection and greywater treatment, solar hot water systems, solar photovoltaic cells for lighting and passive ventilation, will help achieve this aim and deliver cost savings for both Housing NSW and the low-income tenants who live in the development.

The project's design aims to reduce energy consumption by 74 per cent when compared with standard residential buildings of similar size. What's more, the energy efficiency measures are predicted to save around \$26,000 across the entire development in energy consumption each year alone.

The reuse of rainwater and treated greywater will ensure around 45 per cent of all water demand on the site is met by non-potable water, and water-efficient fittings and fixtures are being installed throughout. The predicted saving of 4,700 cubic metres of water a year is equivalent to around two Olympic-sized swimming pools or 33,571 bathtubs. Based on current Sydney Water prices, the cost savings will be around \$7,500 a year across the entire tenancy.

SOCIAL SPIRIT

Australia's indigenous people have a long association with Redfern, moving to the suburb in the 1920s for employment opportunities and affordable housing. They formed a strong and vibrant community which is still in evidence today.

Recognising the links between indigenous people and the suburb, a minimum of 20 construction workers on the project were required to be Indigenous. This was a 'first' for a public housing project in Australia, and was rewarded with a Green Star Innovation point.

Empowering the local community was an integral part of the sustainable development, and Housing NSW provided employment opportunities to both Aboriginal and long-term unemployed people to enhance their business skills, increase their knowledge of ESD issues and improve the social and economic conditions for both the individuals and their community.

OTHER ESD INITIATIVES FEATURED IN THE PROJECT:

Indoor Environment Quality

- All 106 apartments are naturally-ventilated and there is no air conditioning in the development

Energy

- Gas-boosted solar hot water is installed in apartment buildings and instantaneous gas hot water systems in townhouses
- PV cells for common area lighting
- Use of low embodied energy materials where possible

Water

- Rainwater harvesting for toilet flushing and laundry
- Greywater treatment system for landscape irrigation

Land Use and Ecology

- Remediation of a contaminated site
- Use of native landscaping

Innovation

- Exceeding the benchmarks of TRA-1 by providing significantly less car parking than the minimum – six dedicated disabled parking spaces are provided on the site
- There is no general parking but generous bicycle storage is provided.

THE MELBOURNE UNIVERSITY SPOT



The Spot is the University of Melbourne's new certified 5 Star Green Star building and home to the University's Faculty of Business and Economics. Commissioned by Professor Margaret Abernethy and designed by architects Metier3, The Spot is a purpose-built teaching and research centre which will become a hub for business and economics learning and innovation. The building forms an integral part of the growing university campus precinct south of Grattan Street in Carlton.

A SHRINKING CARBON FOOTPRINT

In 2007, the University of Melbourne made a commitment to reduce its carbon footprint by 50 per cent by 2010 and achieve carbon neutrality by 2030. To help reach this target, the University decided to benchmark The Spot against the yet-to-be-released Green Star Education tool.

The University committed to achieving the Green Star rating to provide independently-verified evidence of the building's environmental credentials and to help the project team to adopt a holistic approach to the building's design.

To achieve the rating, the project team put aside a margin equivalent to 5 per cent of the project's cost. This consisted of 4 per cent for known works, along with a 1 per cent contingency to cover the unknown implications of the Education tool. This 'green building fund' proved enough to deliver The Spot a 5 Star Green Star rating, recognising 'Australian Excellence' in environmentally sustainable design.

According to the Vice-Chancellor Professor Glyn Davis AC, "The success of The Spot has spurred the University to commit to a minimum rating target of 5 Star Green Star for all new major building developments, and 4 Star Green Star for all major building upgrades.

"Green Star enables us to demonstrate our true commitment to sustainability. This is important to reduce our carbon emissions significantly as prospective students increasingly consider the environmental impacts of their university choice. Rating our buildings helps build trust in our commitment. Furthermore, it helps us to reach our performance targets and makes economic sense, as our green buildings outperform existing buildings by large margins," the Vice-Chancellor says.

In keeping with this approach, the University of Melbourne is currently seeking Green Star certification for high-level laboratory uses in the new Melbourne Brain Centre and the Peter Doherty Institute building.

PROJECT DATA

Location
198 Berkeley Street,
Carlton, Victoria

Size
25,851m² GFA

Owners
The University of Melbourne

Architect
Metier 3

Project manager
Donald Cant Watts
Corke Management

Contractor
Probuild Constructions

Services engineer
Lincoln Scott

Structural engineer
Winward Structures

Hydraulic engineer
CR Knight

Façade engineers
Meinhardt Façade Technology

ESD consultants
Advanced Environmental



FLEXIBLE FORM

Modular and soft-wired demountable partitions were installed throughout the academic accommodation areas of the building. Representing 56 per cent of all partitions installed, these demountables can be easily relocated without specialised tools or even specialised contractors such as electricians. This gives a greater flexibility to the space without the need to perform remedial works, thereby reducing both waste and operational impacts. The Spot was awarded one innovation point in recognition of the environmentally-beneficial outcomes of this partition design.

A POWER OF DIFFERENCE

At the end of 2009, The Spot was rated using the NABERS Energy Whole Building rating tool and achieved an impressive 4.5 stars. The most remarkable result, though, was that the assessment showed that The Spot used 46 per cent less energy in its first year than comparable buildings across the rest of the University. According to the report, "the whole building's energy use is considered to be exceptional".

This translates to savings of over \$180,000 per annum compared to the average of equivalent buildings on campus, a saving which will more than discount the sustainability premium of 5 per cent, before productivity benefits are even calculated.

ESD INITIATIVES FEATURED IN THE PROJECT

Management

- Engagement of Green Star Accredited Professionals across all disciplines

Indoor Environment Quality

- 100 per cent less fresh air with 200-250 per cent less increase on standard rates
- Use of low-VOC products throughout the project

Energy

- 46 per cent less energy/m² GFA than the average of comparable university buildings

Transport

- Located near numerous public transport hubs
- Bike racks and shower facilities installed

Water

- 83 per cent reduction in water use

Land use and Ecology

- Reuse of an existing site

Emissions

- Reduced flow to sewer, via use of a blackwater treatment plant
- Blackwater recycling system capable of treating 30,000 litres of sewerage per day.

A NEW FACE ON CAMPUS

To improve indoor environmental quality, the project team worked closely with glass manufacturers to develop a unique high performance façade for the building. In an innovative approach, frit – a vitreous substance used in making porcelain, glazes or enamels – was applied to 50 per cent of the external surface. The result is a façade that both maximises daylight penetration and minimises solar heat gain.

By minimising heat gain, The Spot has reduced its overall annual chiller load by 20,645 kWh, a saving of 15 per cent compared to having installed the same glazing unit without frit. This reduction has also allowed for the installation of a chilled beam air conditioning system – a first for an education building in Australia.

CLEARING THE AIR

Studies in the US have shown consistently that improved indoor air quality leads to better health outcomes, with reductions in illness symptoms ranging between 13.5 to 87 per cent.

The Spot delivers 100 per cent fresh air with a 200-250 per cent increase on standard rates, provides individual thermal control of workspaces and has reduced volatile organic compound exposure through the use of low VOC paints, carpets and sealants. Each of these improvements will help enhance student wellbeing and focus, and deliver improved educational outcomes.

According to Chris White, the University's Executive Director of Property & Campus Services, "the central environmental focus of the project was IEQ due to its capacity to improve learning outcomes. The great outcomes we achieved in this area were the direct result of having wall-to-wall Green Star Accredited Professionals on the project from Day One".

Communities

An illustration of two stylized human figures, one in white and one in black, walking on the crest of a white wave that forms the end of the word 'Communities'.

A sustainable community embodies the principles of sustainable development, respecting ecological limits and natural resource constraints, encouraging prosperity and well-being while optimising conditions for human development.

Much has been written over the past few years about the 'triple bottom line' approach; which aims to achieve economic, environmental and social sustainability. Many believe that the 'sweet spot', or best practice outcome, lies within the middle of the three attributes.

However, it is also becoming evident that the environment provides the largest circle – the most important setting – within which society sits. In turn, a truly sustainable economy can only exist within a resilient society, itself within a flourishing environment. Communities must be able to identify, and pursue, all of these elements, in order to achieve long-term success.

A sustainable community has aspirations for the future that acknowledge the challenges brought about by change. It is liveable, resilient, diverse and adaptable. It strives for a lower carbon and ecological footprint. A sustainable community evolves through policy and collaborative practice that respects and embraces the aspirations of existing and future community stakeholders.

Making sustainability

Meaningful and Measurable



Many of these challenges will be felt most severely in our major cities, which will accommodate around 85 per cent of our 36 million plus population by 2050.

These issues are front-and-centre in the minds of our political leaders – so much so that the Prime Minister appointed Tony Burke as Minister for Sustainability, Environment, Water, Population and Communities in September 2010.

This appointment was the culmination in a year long conversation about the sustainability of our cities. Earlier in the year, the Australian Government released its *State of Australian Cities Report 2010*, which predicted a future nation of gridlocked transport networks, soaring transport costs, increasing car dependency, declining air quality and generally poorer health outcomes.

The report identifies congestion as a serious challenge – one that will erode not only lifestyle quality but also economic prosperity. The report estimates that the avoidable cost of congestion for the Australian capitals will rise from around \$9.4 billion in 2005 to \$20.4 billion in 2020, impacting adversely on Australian productivity and our economy.

Congestion not only lengthens hours spent away from home, but also plays havoc with the already precarious work/life balance sought by the majority of Australians. What's more, transport emissions are one of the largest sources of emissions growth in Australia. That growth is expected to continue, with direct CO₂-equivalent emissions projected to increase 22.6 per cent between 2007 and 2020 – or at a rate of around 1.58 per cent a year.

Also released in 2010 was the Australian Sustainable Built Environment Council's (ASBEC) *Cities for the Future: Baseline report and key issues* which found that, by 2041, transport-related greenhouse gas emissions across Australian cities will increase by an average of around 50 per cent and travel times for commuters will increase by a quarter.

The report also suggests that, within thirty years, urban centres will become more transport-intensive and less transport-efficient. The result being that greenhouse gas emissions in some regions, such as South East Queensland, are predicted to increase by 75 per cent.

Clearly, we need a new approach to the way we design and build our cities.

→

Australia is confronted by significant long-term challenges. Population growth and demographic change, transport congestion, housing affordability, infrastructure development, climate change, energy and resource limitations, technological advances and the influences of the global economy have the potential to irrevocably shape the nation.



“The Green Star – Communities tool will be a valuable resource to ensure future developments are better connected with walking and cycling routes to transport hubs, community facilities and services. At the same time, these better connections will reduce our use of energy and water and will cut greenhouse gas emissions.”

**Wayne Gibbings, Chief Executive,
Land Management Corporation (SA)**



FROM GREEN BUILDING TO BUILDING GREEN

Since 2003, the Green Star environmental rating system for buildings has provided some clear guidance on the planning, design and construction of our buildings, through best practice standards that can be both measured and monitored.

Now, nine years on and with well over four million square metres of Green Star-rated buildings and 8 million square metres of Green Star registered projects reshaping our cities and spreading to our regional centres, we have an even greater challenge. We have recognised that buildings do not sit in isolation from the greater urban management challenges of a growing and ageing Australia, and therefore understand that our sustainability aspirations cannot be fully realised if we segregate the built environment from its surroundings.

“In the past, nationally-consistent best practice built environment outcomes have been difficult to achieve when policies and regulations are driven at a state or local government level,” says Adam Beck, who is leading the Green Building Council of Australia’s Green Star – Communities project. “The diverse range of perceptions and realities of sustainable built environment outcomes have also been a challenge.

“For both government policy makers and private sector developers, Green Star – Communities provides an opportunity for national consistency and project performance measurement. With Green Star – Communities as a reference point for policy makers and a yardstick for those delivering projects, we will ultimately provide the foundations for greater clarity, efficiency, consistency and outcomes for sustainability,” Beck says. →

FIVE PRINCIPLES OF SUSTAINABLE COMMUNITIES

The Green Star – Communities National Framework has established five principles to influence the evolution of new and existing sustainable communities in Australia



Enhance liveability

Sustainable communities are liveable. They are diverse, affordable, inclusive and healthy; they enhance social interaction and ownership, are safe and caring and improve people’s well-being.



Economic prosperity

Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region.



Design excellence

Sustainable communities are designed to be places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve over time.



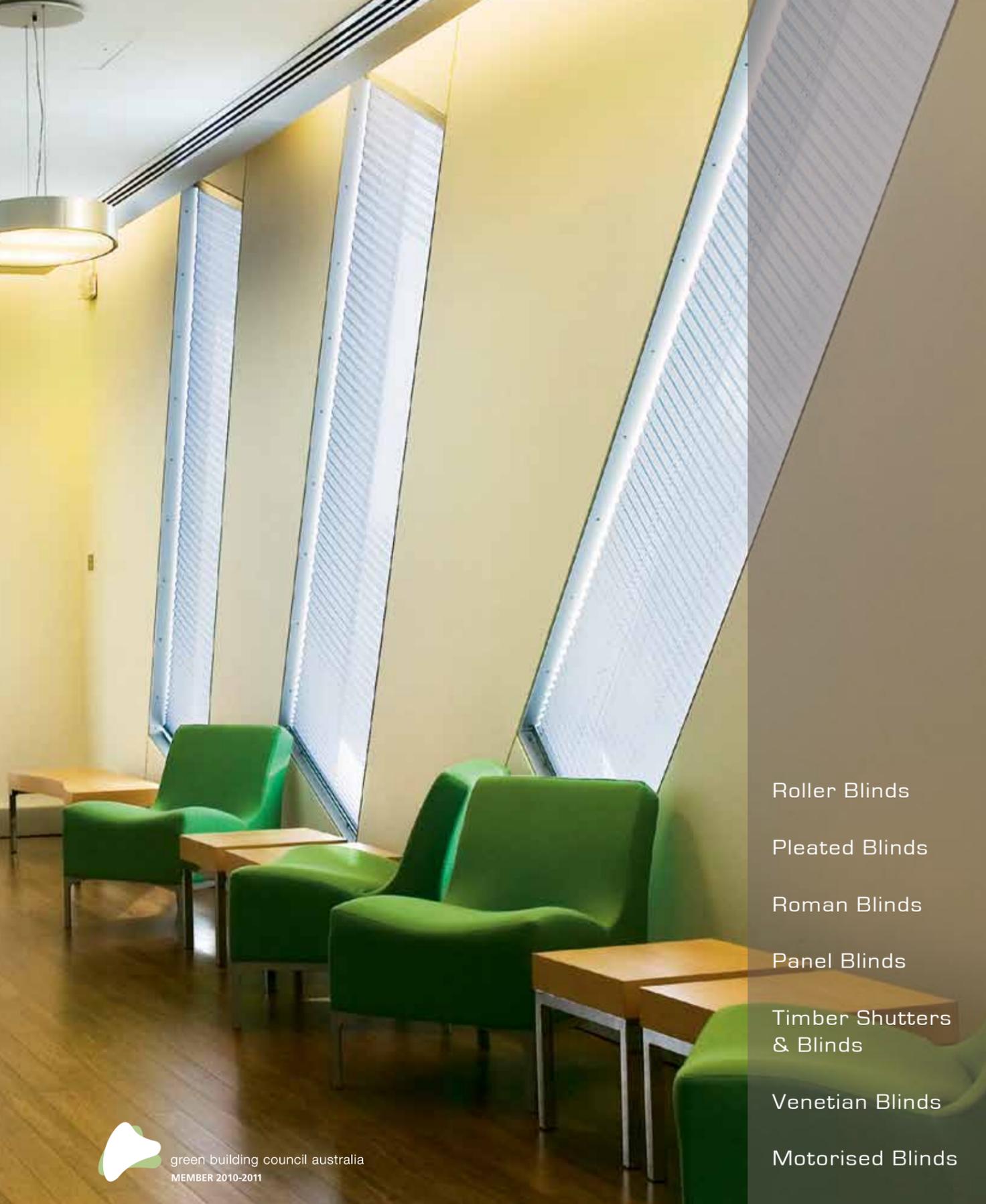
Environmental responsibility

Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of their bio-regions. They are less resource intensive. They promote infrastructure, transport and buildings that reduce their ecological footprint.



Leadership and governance

Sustainable communities are characterised by leadership and strong governance frameworks that are transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision and deliver stakeholder benefit.



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STEP-BY-STEP TOWARDS SUSTAINABILITY

The first stage of the Green Star – Communities project was to establish an independent, consistent language to guide the development of sustainability communities and precincts. The Green Star – Communities National Framework was developed from feedback from 700 stakeholders, after consultation workshops and briefing sessions held in every mainland state and the national capital, as well as input from government policy makers, designers, utility providers, planners, financiers, health professionals, sociologists, real estate agents and constructors.

“We asked people what they would like to see in a tool,” Beck explains. “More than a hundred detailed questionnaires were completed, providing us with valuable quantitative data, which complemented the hundreds of stakeholder conversations which gave us qualitative feedback.”

More than 30 authors collaborated on the framework, not to mention 200 editors who scrutinised the draft versions. “It was truly a national collaboration and something we believe has never been undertaken before.

“We maintained an open mind throughout the consultation phase, and were willing to end the journey at the end of Stage 1 if industry believed a tool was not needed. However, there is a clear indication that the tool is needed, and government and industry are committed.”

So, what does the framework do?

Firstly, it establishes a common language – a definition – of what a sustainable community may look like, Beck says.

“It is visionary and aspirational and gives government and industry a reference point in their work. It contains five principles which cover the full spectrum of sustainability and identifies a range of issues which need to be considered when visioning, planning, designing, delivering and revitalising our communities. Ultimately it will influence the social, economic, environmental, design and governance fabric of our cities.

Secondly, the framework provides some foundations for the Green Star – Communities rating tool, which is currently under development in partnership with a Technical Working Group (TWG) made up of GBCA members with specialist skills in the areas identified by the five principles.

The TWG is currently reviewing existing best practice standards and benchmarks with a view to compiling a suite of final benchmarks for each of the tool’s categories. These benchmarks will be used to establish an assessment process which will rate sustainable communities. →

More than 30 authors collaborated on the framework, not to mention 200 editors who scrutinised the draft versions. “It was truly a national collaboration and something we believe has never been undertaken before.”

ALL THINGS TO ALL PEOPLE

Adam Beck says that the Green Star – Communities rating tool can truly be ‘all things to all people.’

“The tool will present federal government with a vehicle for delivering policy outcomes. At the same time, it will provide state governments with guidance for planning and approval of significant state projects. At the local government level, it will offer a framework for greater sustainable development outcomes. The tool will facilitate more efficient development processes and ultimately help developers get their products out to market quicker. Financiers will gain a framework for sustainable investment. And consumers will have the ability to make informed decisions about what lifestyle they choose to live.”

Nowhere in our modern history have we seen government and industry collaboratively establishing the sustainability standard for best practice performance.

In a keynote speech in 1968 Australian Prime Minister Gough Whitlam claimed that “we had devoted far too little effort and attention in building the communities within our cities”. The era that followed was marked by a determination to systematically identify national strategies for more sustainable growth.

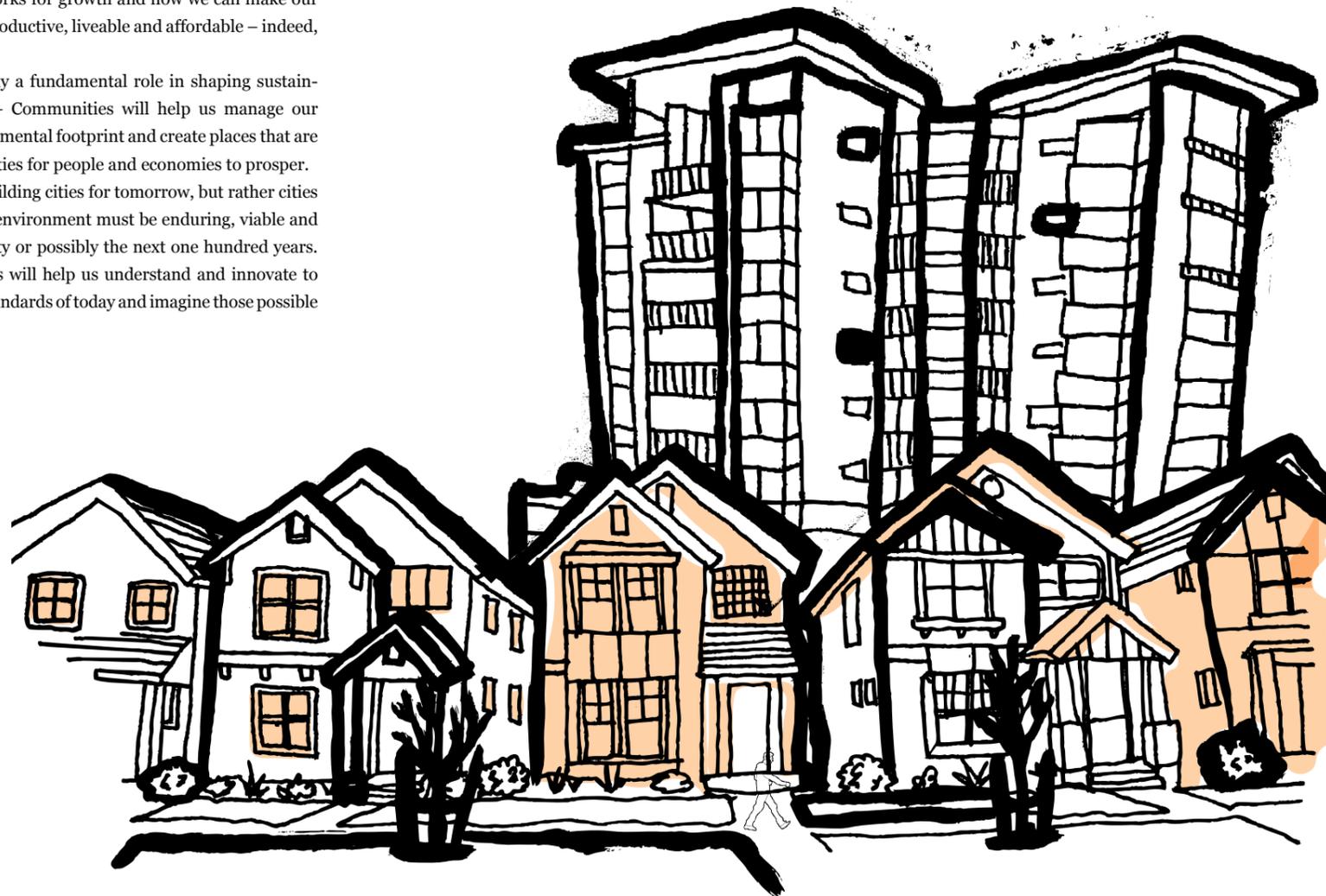
More than four decades on, we are faced again with much political and community debate around our frameworks for growth and how we can make our cities and communities better – more productive, liveable and affordable – indeed, more sustainable.

Green Star – Communities will play a fundamental role in shaping sustainable cities of the future. Green Star – Communities will help us manage our natural resources, minimise our environmental footprint and create places that are healthy, liveable and provide opportunities for people and economies to prosper.

After all, we are not building cities for tomorrow, but rather cities for generations. Our built environment must be enduring, viable and sustainable for the next fifty or possibly the next one hundred years. Green Star – Communities will help us understand and innovate to achieve the best practice standards of today and imagine those possible for the future. ●

“This collaboration will ultimately result in a tool capable of setting a new national development standard – a standard to ensure what we develop today has a lasting and positive impact for all Australians.”

Ross Holt, Chief Executive of LandCorp (WA)



A NATIONAL COLLABORATION

The Green Star Communities project is being led by the GBCA, with the support of project partner VicUrban and a diverse group of stakeholders representing all levels of government, the development sector, academia, natural and social sciences and the planning and design profession.

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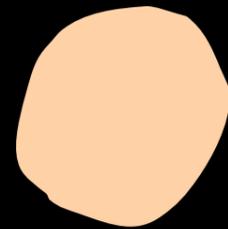
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We are not building cities for tomorrow, but rather for generations.

We must move beyond the confines of buildings and undertake the even greater challenges of defining national best practice sustainability benchmarks for our cities, communities and places. We simply cannot continue to create islands of sustainability in a sea of mediocrity.



WHAT IS YOUR VISION OF A SUSTAINABLE COMMUNITY?

“Imagine a city that uses 100 percent renewable energy... where most transport is by electric light rail, biking, or walking... where the solar office block is filled with green businesses... where the local farmers’ market sells fresh, bioregional produce... where parents meet in the parks and gardens while their children play without fear in streets that are car-free. There are communities around the world already living like this – from Freiburg in Germany to BedZed in the UK. It’s my dream that all new communities are built with this vision in mind.”

Peter Newman

Professor of Sustainability, Curtin University

“Australian urban sustainable communities of the future will see a transformation of our existing cities as they begin to contain zones of productive suburbia capturing water, generating solar energy and planting for trees and food. These areas will exist in close proximity to low-rise high-density activity centres and transport corridors. These high-density areas will be made up of four to six storey apartments facing onto quality walkable / public transport streets which are well-shaded by street trees and nourished by water mined from the sewers. Solar energy, public transport, reuse of water and walkability will combine with ‘liveable high streets’ to form our sustainable cities of the future. This is where suburbia meets urbanity.”

Professor Rob Adams AM

Director City Design, City of Melbourne

“Sustainable communities are great places for people to live, work and enjoy time together now and well into the future. In these communities people feel a strong sense of connection and responsibility – to local community, place and environment. Sustainable communities are resilient through times of change and challenge. These are places that accommodate people in all stages of life and are defined by good health, a sense of security, access to education and strong job prospects, with a vastly reduced environmental footprint.”

Siobhan Toohill

General Manager, Corporate Responsibility and Sustainability
Stockland

“Sustainable communities are liveable communities – places built for people. They are as desirable today as they will be in the future as places that are resilient and can stand the test of time. Sustainable communities are places in which people of all ages, abilities and backgrounds want to live, work, learn or play; places that people seek to visit again and again. Sustainable communities are forward-looking, aspiring to ever reduce their ecological footprint.”

Pru Sanderson

Chief Executive Officer, VicUrban

“The ideal sustainable community is a place where the community shares environmental values and friendships enable sustainability to cross kitchen tables, sporting ovals and local pubs. It’s a place where resilience is defined through an eco-lens, where communities adapt to warming and severe weather trends by relying on each other in ways that cut the greenhouse cycle. Green schools inspire a new generation of Aussies in the ideal sustainable community. Great design makes it easier for people to travel, live and work in flexible ways – connected through digital channels that bring people and ideas closer together without needing to travel as much. The ideal sustainable community is a place where growing fruit and veg is as common as playing footy. Most of all, the ideal sustainable community is a place that our kids can imagine and then create.”

Mara Bun

Chief Executive Officer, Green Cross Australia



Q & A

ABOUT GREEN STAR – COMMUNITIES

What type of tool will Green Star – Communities be?

It will be a voluntary rating tool that provides projects with an independently-verified rating that enables projects to demonstrate their sustainability credentials.

How is Green Star – Communities different to other sustainability tools in the market?

Currently, there is no national sustainability rating tool that provides development projects with an independently-verified single rating. There are, however, a number of sustainability tools that provide assessment and branding functions that may be referenced in Green Star – Communities.

What issues will Green Star – Communities cover?

The rating tool will assess the sustainability attributes of projects across social, economic and environmental spectrums. Five categories of the tool have been identified: Liveability; Economic Prosperity; Environmental Responsibility; Design Excellence and Leadership; and Governance.

What will Green Star – Communities look like?

The rating tool will have five categories containing measurable best practice performance criteria. Each criterion will have a number of allocated points and documentation requirements to which projects will be required to respond. The points assigned to credits will be tallied and translated into an overall single rating. The tool will be available online and will be supported by a detailed technical manual.

What will Green Star – Communities assess?

It will assess the documentation associated with projects that are defined by a plan (including supporting documentation), whether it be a master plan, structure plan, neighbourhood plan, centre plan, renewal plan or something similar.

What type of projects will Green Star – Communities rate?

The word 'communities' has many different interpretations, and the rating tool acknowledges this by containing credits that are applicable to precinct, neighbourhood, place, centre and city-type development projects.

How will projects be rated?

Project teams will apply the tool to their projects and compile the necessary documentation as evidence that performance is achieved. Independent assessors will then undertake a review of project documentation and recommend a final rating to the GBCA. The GBCA will then award a rating for the project.

When will Green Star – Communities be available to the market?

The rating tool is currently under development. A pilot tool will be developed initially, and tested on a range of pilot projects before a 'version 1' tool is released. It is anticipated that the pilot tool will be released for testing in the second half of 2011.

Who will develop and maintain Green Star – Communities?

The GBCA facilitates a process that involves industry and government stakeholders identifying best practice performance benchmarks and determining the points allocated to each. The GBCA then constructs the tool and manages the ongoing administration of that tool (such as updates, registrations, education and certification).

How can I become involved in Green Star – Communities?

Visit the Green Star Communities website:

www.greenstarcommunities.org.au

Contact: Adam Beck, Project Leader,
Green Star – Communities, 0410 506 043
or adam.beck@gbca.org.au



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loop

Rock Development Group's project 'loop' is aiming to become one of Australia's first 6 Star Green Star communities.



Built upon a 40,000 square metre site, 'loop' is a redevelopment project site, with the Belconnen Fresh Food Markets at its heart. It will be a mixed use development with more than 300 apartments, more than 3,700m² of retail space and 8,500m² of office space, with an overarching vision to enhance the site through active sustainable design.

"We aim to make sustainable living part of the everyday life of Australians and leave the land in a better state than we inherited it," says Rock Development Group Director, Maria Efkarpidis.

The project – which has been called loop because it represents the interconnected and never-ending relationship between humanity and the earth – will feature a variety of initiatives that will generate energy and conserve resources; these have been designed with the help of Northrop Sustainability. Power will be generated by a large-scale grid of connected photovoltaics on all available roof spaces, and by a series of roof-mounted wind turbines. Geothermal heat pumps will also be installed to allow a highly efficient HVAC plant to be operated at the site.

On the other side of the equation, energy demand will be minimised through a combination of good design and sustainable technology. Mixed-mode buildings will be constructed which combine natural ventilation with mechanical air conditioning. This will reduce heating and cooling demands, while also limiting new material use by incorporating reused materials.



"If we want to leave a better world to our children, our buildings and our communities need to be more sustainable."

Maria Efkarpidis



SIZE MATTERS

There is a key advantage that sustainable community projects offer when compared with single building projects – their efficiencies of scale. loop will capitalise on this by introducing a precinct-wide energy management system to minimise and manage energy demand across the entire project. Water use can also be managed more effectively on a large scale, with loop providing integrated rainwater and wastewater reuse systems to collect and supply recycled water to all areas of the site.

EDUCATING THE COMMUNITY

While the building attributes lay the ground work for a sustainable community, the project team recognises that education is also required to maximise the environmental outcomes of the project. To this end, sustainability education elements are to be incorporated into many of loop's facilities. One example of this will be the onsite commercial composting system, which will be used to educate users about reducing waste as well as producing high quality gardening soil for the residents who live at loop. Providing rich education opportunities will both reward residents and help the precinct achieve other long-term sustainability goals such as zero waste practices.

The precinct will also provide a number of other sustainability services for tenants, such as plug-in points for electric vehicles, electric car pooling and direct public transport connections. These features will make it easier for people who live and work at loop to lead a more sustainable lifestyle and reduce the community's carbon footprint.

BEYOND SUSTAINABILITY

Rock Development Group believes that "sustainable living is a far richer concept than just being green. It encompasses all elements of our lives to ensure we live responsibly."

In this respect, loop aims to enhance the lives of residents by promoting healthier lifestyles and encouraging interaction with other residents. This will be achieved by providing social and active spaces such as barbecue areas, community vegetable gardens, roof gardens, and hosting healthy-eating campaigns in partnership with the Canberra TransACT Capitals women's basketball team. Shared laundries will also be installed, delivering dematerialisation benefits and encouraging greater social involvement in the community.

WHY GREEN STAR COMMUNITIES?

Achieving a 6 Star Green Star – Communities rating for loop is important for Rock Development Group, not only because the company is the principal sponsor of the Green Star – Communities rating tool, but because such a rating reflects Rock's status as a thought leader and pioneer in the development of sustainable communities.

Maria Efkarpidis says: "Buildings which minimise energy and other operating costs make a huge difference to the long-term financial wellbeing of the people who live and work in them. Perhaps more importantly, if we want to leave a better world to our children, our buildings and our communities need to be more sustainable."

It is hoped that, through pioneering the concept of sustainable communities, loop will set the standard for future sustainable projects. ●

PROJECT DATA

Location	Size
Belconnen Markets Redevelopment, ACT	40,000m ²
Developer	Architect
Rock Development Group	Colin Stewart Architects
	ESD
	Northrop Sustainability



Move over blue and white-collar workers. Green-collar workers are flourishing in the job market.



Inova21

6 Star Green Star – Education Design v1

● Photography Dianna Snape

ADVANCING OUR GREEN SKILLS

“What have I gained from being a GSAP? Employment, networks, friendships, understanding and real commercial outcomes.”

Malcolm Munro,
Senior ESD Consultant, Murchie Consulting

“Being a Green Star Accredited Professional has given me credibility with my clients who appreciate that becoming a GSAP is not easy. It has also made me a valuable architectural rep, as I understand the Green Star documentation procedures and can assist my clients to see through the ‘greenwash’ of some of my competitors.”

Margaux Bonne,
Business Development Manager –
Commercial VIC, Cavalier Bremworth Carpets

“Supporting continuing education will add more value to Green Star Accredited Professional status, as it demonstrates that you are up-to-date and have a real commitment to green building.”

Dr Dominique Hes,
Lecturer Sustainable Architecture,
University of Melbourne

As Australia transitions to a low carbon economy, we can expect a booming demand for ‘green collar workers’ across the property and construction sector. But our industry must have the skills to ensure we fully capitalise on this green collar growth.

A vital part of the Green Building Council of Australia’s role is to provide green building education for our members and the broader industry. As a leading learning resource, the GBCA has trained more than 17,000 people on how to apply green building principles to their projects and integrate green thinking into their day-to-day operations.

The GBCA is working with government and industry to encourage the uptake of green skills across the economy. We advocate a holistic approach to green skills, with sustainability truly integrated into the nation’s skills base, rather than green being seen as an ‘add-on’ to current curricula. In the same way that Occupational Health & Safety has become an integrated part of industry training, green skills must be embedded into every curriculum to ensure we develop better, safer, greener buildings.

In July 2010, the GBCA launched the Continuing Professional Development (CPD) program to ensure the industry maintains and expands these green skills. The CPD program aims to help green building professionals increase their knowledge of Green Star and stay in touch with the latest trends and technologies in green building. The program has already proved incredibly popular – with more than 2,500 people signing up in the first month and 4,000 people now participating.

Whether they’re new to green building or practiced professionals, the CPD program will help everyone to progress their careers by equipping them with essential skills for Australia’s green building future. As part of the CPD program, the GBCA offers a range of online, in-house and face-to-face courses, including:

- Green Star Foundation for the nuts-and-bolts of green building and Green Star
 - Master Classes for professionals, contractors and suppliers working in the property and building industries
 - Green Star specialist courses for industry sub-sectors and specific building types.
- CPD participants can also attend sustainability education with partner associations, including:
- The Australian Institute of Architects
 - Facility Management Association
 - Australian Institute of Refrigeration, Airconditioning and Heating
 - Property Council of Australia.

The GBCA’s green building skills training is helping green builders at the top of their field to stay there, and giving those just starting out a serious boost. ●



REACHING
FOR THE
**GREEN
STARS**

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This vision is now a possibility.

Hassell Melbourne
4 Star Green Star – Office Interiors v1.1

The launch of the Green Star – Public Building PILOT rating tool in October 2010 signals a new chapter in the history of Green Star, with the environmental rating system now encompassing each building classification under the Building Code of Australia.



The GBCA's next challenge is to develop and deliver a single rating tool that sets the standards for the development of not only new buildings, but existing buildings too, and not just for single structures, but for entire communities.

According to Director Green Star Tools, Andrew Aitken, we are "just a few steps away from the next generation of Green Star – one single, easy-to-use rating tool."

In preparation for this evolution, the Green Star tool development team were focused on four major projects in 2010.

GREEN STAR – PUBLIC BUILDING

While hospitals, schools, shopping centres and industrial sheds have been able to achieve Green Star ratings for some time, public buildings such as law courts, museums, art galleries and places of worship could not.

The release of the Green Star – Public Building PILOT rating tool in October 2010 changed all this.

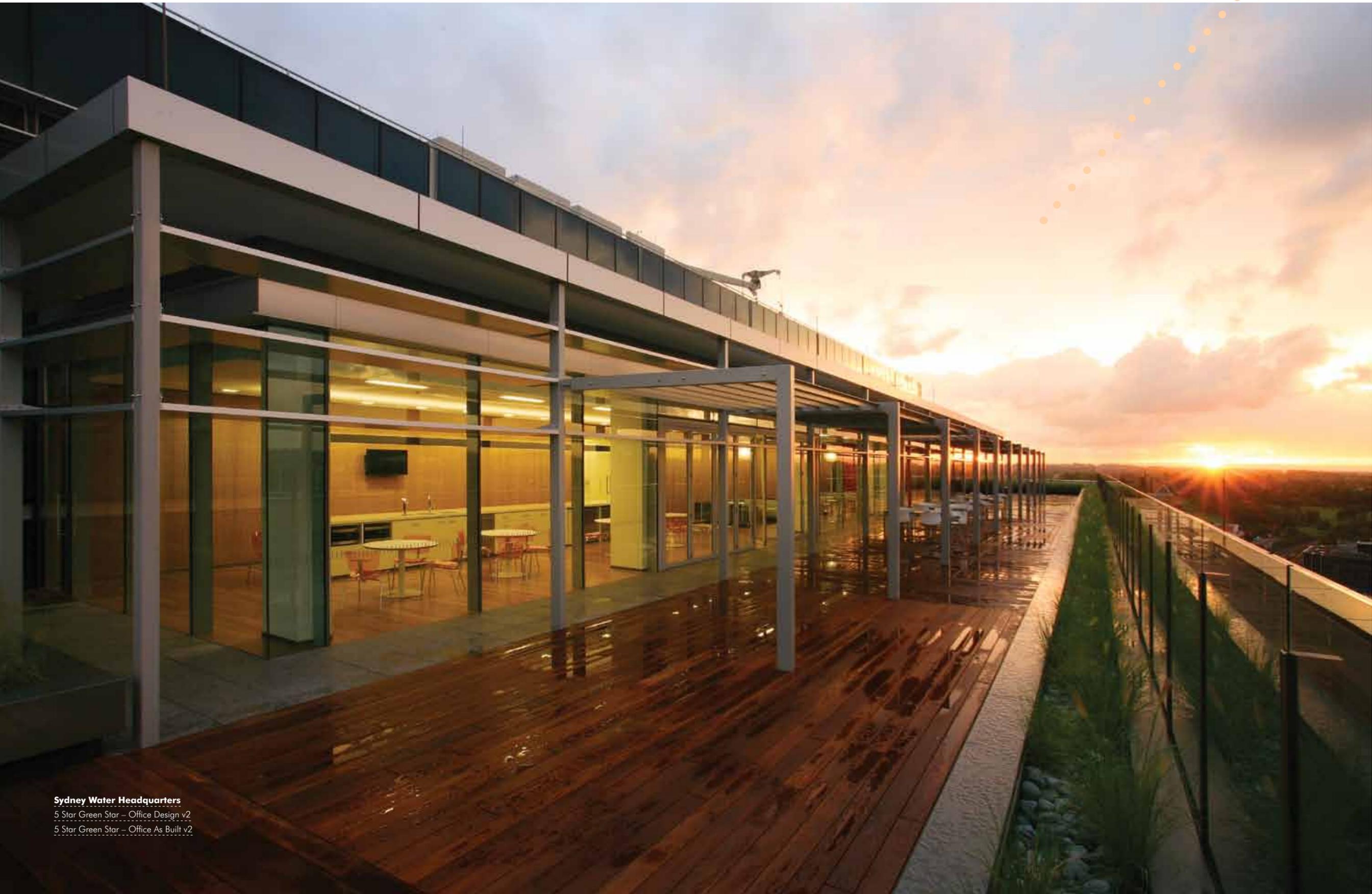
"The new Green Star tool for public buildings gives industry access to best practice benchmarks for public buildings, as well as a system of independently-verified certification which clearly demonstrates the sustainability credentials of leading public buildings around Australia," Aitken says.

The new tool, which is currently being piloted on a handful of specially-selected projects, is based on existing Green Star tools, with some customisation and new content, including a revised water category and material calculators, as well as a new methodology for assessing greenhouse gas emissions. →

Chadstone Shopping Centre

5 Star Green Star – Shopping Centre Design PILOT





Sydney Water Headquarters
5 Star Green Star – Office Design v2
5 Star Green Star – Office As Built v2

Watpac Developments

4 Star Green Star - Office Design v2
4 Star Green Star - Office As Built v2



Orica Consumer Products Corporate Offices Clayton

4 Star Green Star - Office Design v2





Wesley House

5 Star Green Star - Office Design v2

5 Star Green Star - Office As Built v2

GREEN STAR – PERFORMANCE

Green Star will soon address the 95 per cent of the market that isn't brand new, with Green Star – Performance being developed to assess the full range of existing buildings in the market, regardless of building type.

“While there are already tools available, such as NABERS, that address buildings already in operation, our stakeholders have told us there are significant gaps in that market,” Aitken explains.

“Green Star – Performance will address these gaps by covering all nine Green Star environmental impact categories, including management, transport, indoor environment quality, land use and ecology, emissions, materials and innovation – in addition to energy and water covered by NABERS.

Green Star – Performance will also consider the combined impact of the various sustainability categories and deliver one single Green Star rating.”

“We will work closely with NABERS to ensure there is no duplication of measurements or benchmarks where widely – accepted market practices exist, such as NABERS Energy and NABERS Water in the commercial office market,” Aitken says.

This Green Star tool will help facility managers to inform upgrade and retrofit programs within buildings, and to drive ongoing programs focused on continual performance improvements.

“Our goal is to make Green Star so easy to use that it appeals not only to professionals ‘reaching for the stars’ to deliver world-class building projects, but also to everyone who wants to improve their buildings’ performance,” Aitken says.

Project teams will be able to download case studies of high performance existing buildings and other resources to fill in the information gaps.

“We predict that, within a few short years, existing buildings will generate more work for the GBCA than everything else combined,” Aitken says, pointing to the US Green Building Council, which now certifies more floor area and has more registered projects for its existing building tool than for all the other LEED tools combined.

“It’s a major change in the way we do things,” he says.

GREEN STAR – CUSTOM

In 2010, the GBCA began testing a new tool development service for buildings not eligible for a certified rating using current Green Star tools.

“This new tool development service will ensure supermarket and restaurant chains, leisure and aquatic centres, data centres, ‘big box’ retailers, hotels and other mixed use building projects can achieve Green Star ratings,” Aitken explains.

GREEN STAR – COMMUNITIES

In the last eighteen months, the GBCA’s focus has evolved from assessing individual buildings to examining whole communities, and from assessing environmental benefits to a whole range of sustainability issues such as liveability and governance.

“The Green Star – Communities tool development process is driving the agenda for Australia’s green building future – a future in which environmental sustainability is inextricably linked with economic prosperity, liveability, design excellence and strong governance,” Aitken says.

While the GBCA expands its influence beyond buildings, Green Star will ensure we have the right tools – and the right skills – to push the boundaries of best practice sustainability benchmarks. ●

EVOLVING, IMPROVING

The Gauge

6 Star Green Star – Office Design v2
6 Star Green Star – Office As Built v2

As any team involved in a Green Star project will confirm, formal Green Star documentation and certification is a challenging and comprehensive process. It's not easy to achieve a Green Star rating – and nor should it be.

Green Star is recognised in the marketplace as a rigorous and trusted third-party assessment – and a Green Star rating is positive proof of a company's commitment to sustainable building.

However, the Green Building Council of Australia is also committed to securing Green Star's long term relevance to industry – and this means ensuring the rating tools are robust, easy-to-use and continue to reflect best practice standards and beyond.

In the last twelve months, the Green Star certifications team has rolled out a number of enhancements to the Green Star tools to streamline certifications and ensure documentation is kept to a minimum.

"Green Star undergoes regular refinements based on feedback from industry and learning outcomes from each certification," says Green Star's Andrew Aiken.

"We collaborate closely with other green building councils and incorporates lessons learnt from the certification processes of rating tools – particularly LEED in the US and BREEAM in the UK, as well as Green Star New Zealand and Green Star South Africa – to ensure the Green Star certification process remains at the leading edge of world's best practice." →

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In 2010, the Green Building Council of Australia worked on a number of projects aimed at continuously improving Green Star, which include:

Dedicated case managers

A case manager is assigned to each new registered project, ensuring the project team has one contact point in the GBCA who understands the project and can provide individual guidance and support during the certification process.

State-based portfolios

Case managers are responsible for all projects in one state, ensuring continuity for many project teams working on multiple Green Star projects in the same jurisdiction.

New certification office in Melbourne

We have established a certification team in Melbourne, in recognition of the fact that Victoria is the GBCA's leading market in terms of registered and certified projects. We'll continue to grow this team, which will be responsible for not only Victorian certifications, but those in the ACT, South Australia and Tasmania, too.

Streamlined documentation requirements

We've reduced the requirements for a Green Star – Office Design v3 submission by about 90 pieces of documentation. Green Star – Office As Built v3 submissions have also been reduced by about 70 pieces of documentation. This 15 per cent reduction in documentation will enable project teams to spend more time focused on improving their buildings' environmental capabilities.

Education and training

We've developed new education programs to better prepare the industry for Green Star certification and effectively document their Green Star submissions.

MoU with NABERS

A landmark agreement signed in February 2010 between Green Star and NABERS mean sharing information on rating tool development, calculators, benchmarks and methodologies to strengthen both rating systems.

Assessment Framework for Product Certification Schemes

We've recognised four third-party assessment organisations, demonstrating that any product certification scheme can achieve recognition with Green Star, provided it meets the stringent compliance requirements of the Framework. We expect more schemes to be recognised in 2011.

Online registration and electronic submissions

An electronic registration system allows projects to reduce registration time and paper work. In addition, submissions are now sent to the GBCA in an electronic format, reducing paperwork required in hard copy submissions and reducing use of paper and other resources.

New registration package

A revised registration fee structure with a package of complimentary GBCA services includes an external building plaque and framed certificate, four technical clarifications, two credit interpretation requests, an in-house project certification workshop and two free technical manuals.

Promotion and recognition

We have introduced more flexible marketing rules which enable project teams to publicise their targeted Green Star rating and maximise their media coverage prior to actually achieving their rating. Once a rating has been achieved, we work together to ensure each project receives maximum recognition and media exposure.

Project directory

We've developed a project directory which showcases all Green Star certified and registered projects around Australia, with search functions enabling visitors to identify projects by state, Green Star rating and tool, as well as download case studies and fact sheets about individual projects.

Online CIR submissions

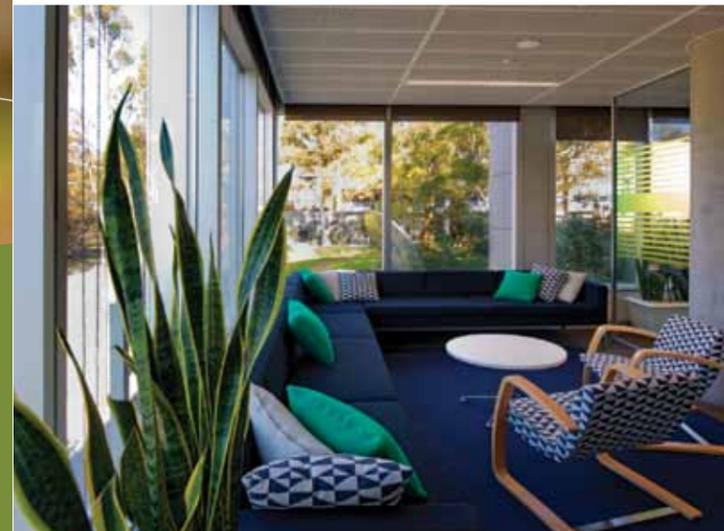
The progress of Credit Interpretation Requests for each project can be submitted and tracked online through our Green Star Project Manager system.

Technical Assurance Committee

The GBCA's Technical Assurance Committee (TAC) is an extension of the regular stakeholder feedback process. The TAC considers and responds to stakeholder concerns regarding the development or operation of Green Star.

The Green Building Council of Australia continues to seek feedback from members and other stakeholders; in 2010, we commissioned research into the value and barriers associated with Green Star certification, as well as the perceptions of the Green Star certification process in the market place.

There is always more work to do – and we will undertake research, seek guidance from our technical committees, listen to our members and integrate that feedback to further improve Green Star and the certification process. ●



Commonwealth Bank Campus

5 Star Green Star – Office Design v2
5 Star Green Star – Office As Built v2



ADVOCATING GREEN BUILDINGS

The Green Building Council of Australia's advocacy strategy in 2010 yielded impressive results. In July, the GBCA released its 'green building agenda' for 2010-2013, which outlined the five priorities which would help steer Australia towards a sustainable built environment. The GBCA's five green building priorities for 2010-2013 are:

- 1 PROVIDE VISIONARY GOVERNMENT LEADERSHIP**
- 2 RETROFIT AND IMPROVE EXISTING BUILDINGS**
- 3 GREEN EDUCATION AND HEALTHCARE FACILITIES**
- 4 MOVE BEYOND BUILDINGS TO COMMUNITIES AND CITIES**
- 5 EMBED GREEN SKILLS ACROSS ALL INDUSTRY TRAINING**

City of Gosnell Civic Centre
5 Star Green Star – Office Design v2

“The existing building challenge has been high on the GBCA’s agenda for some time, and we are pleased to see our advocacy efforts beginning to bear fruit in this area.”

Robin Mellon, Executive Director - Advocacy and International
Green Building Council of Australia



ADDRESSING THE EXISTING BUILDING CHALLENGE

One of the five priorities was addressed during the federal election campaign in August, with the Labor Party committing to the ‘Tax Breaks for Green Buildings’ program. This will allow businesses that invest in eligible assets or capital works to improve the energy efficiency of their existing buildings to apply for a one-off bonus tax deduction of 50 per cent of the cost of the eligible assets or capital works.

“The existing building challenge has been high on the GBCA’s agenda for some time, and we are pleased to see our advocacy efforts beginning to bear fruit in this area,” says the GBCA’s Executive Director of Advocacy and International, Robin Mellon.

ENERGY EFFICIENCY MEASURES RAMP UP

In June 2010, the Building Energy Efficiency Disclosure Bill 2010 was passed by parliament, requiring building owners and lessors to disclose an up-to-date Building Energy Efficiency Certificate when they sell, lease or sub-lease office space of more than 2,000 square metres. The November launch of the Commercial Building Disclosure (CBD) program was warmly welcomed by the GBCA, and as existing rating tools evolve we will see the market rise to the challenge of measuring, monitoring, reading and rating.

“We had advocated the need for mandatory disclosure for some time, and worked very closely with all sides of politics to ensure this Bill was passed. Our next task will be to work closely with the Australian Government to ensure other building types and metrics are introduced into the scheme over time,” Mellon says.

SEISMIC SHIFT IN POLICIES

These two policy ‘wins’ are indicative of a seismic shift across Australia’s policy landscape. In 2010, the GBCA updated its *Green Guide to Government Policy*, finding that all levels of government have introduced programs and policies to support sustainable building in the last two years.

“When we conducted our first comparative study of governments’ policies on energy efficiency in buildings in 2007, many jurisdictions did not have comprehensive or cohesive policies,” Mellon says.

“Indeed, we found that it was not uncommon for one agency to be unaware of another’s activities, despite the potential for collaboration to improve both the efficiency and effectiveness of both agencies’ programs.

“In the past two years, most jurisdictions have developed well-defined policies that guide whole-of-government strategies to encourage sustainable building, covering efficient use of energy, water and materials.”

The *Green Guide to Government Policy* is now a free resource for GBCA members, and is updated quarterly with information from all levels of government.

The Australian Government’s National Strategy on Energy Efficiency (NSEE), the first nationally-consistent roadmap to reduce the carbon footprint of businesses and households across Australia, places a strong emphasis on the role of buildings in climate change mitigation. Similarly, the Prime Minister’s Task Group on Energy Efficiency led to a report which outlined the three goals of clean energy production, energy efficiency and work towards a price on carbon; all measures which the GBCA would support in principle and on which we look forward to working with the government.

“State governments are also recognising the importance of strong leadership in the area of sustainable building, and have ‘put their houses in order’ in the last two years to demonstrate the benefits of sustainable buildings and how these benefits might be captured,” Mellon adds.

On the local government front, the study examined the policies and programs of five major cities: Brisbane, Sydney, Melbourne, Adelaide and Perth. All the city councils have policies in place to reduce greenhouse gas emissions from council buildings. →

The Green Guide to Government Policy is now a free resource for GBCA members, and is updated quarterly with information from all levels of government.



Westfield Doncaster
4 Star Green Star – Shopping Centre Design PILOT



Bond University
6 Star Green Star – Education PILOT

GREENING SCHOOLS

The GBCA's *Green Schools* report, published in 2010, outlines the benefits of green schools, and shares the practical experience of ministers, education departments, principals and teachers in embracing the Green Star – Education rating tool.

"We now have almost 70 primary, high school and university projects registered to achieve Green Star ratings – and are currently engaging with all state governments to ensure they commit to achieving Green Star ratings for all new schools, as well as for new buildings and refurbishments at existing schools," Mellon says.

WORKING WITH AUSTRADE

In 2010 the GBCA signed an agreement with Austrade, the Australian Government's trade and investment development agency, to enable one of its senior industry advisors to co-locate within the GBCA Sydney office. This arrangement will enable Austrade to pursue an agenda of mutual interests around the Australian green building industry and its international markets. In addition to a strategic focus around Green Cities 2011 and the showcasing of Australian green building technologies, systems, approaches and innovation, Austrade will work with the GBCA to develop a joint strategy for GBCA members and their work overseas.

SEIZING THE OPPORTUNITIES

Three things are clear: green building continues to be one of the world's fastest-growing industries; buildings represent the single largest opportunity for greenhouse gas abatement, outstripping the energy, transport and industry sectors combined; and, with the right policy support, green building can be a cost-effective solution to the nation's climate change challenges.

"With several state elections approaching, we'll be tailoring our 'green building agenda' to each state and territory, and seeking to work more closely with each level of government. We are committed to multi-partisan collaboration to ensure that the most accessible opportunities are seized and a range of further incentives is offered, providing an integrated strategy for climate change mitigation and adaptation," Mellon says.

"We will be watching closely in 2011 to ensure that green buildings are recognised not only for their role in addressing climate change, but also in supporting other social and economic agendas such as affordable housing and job growth," Mellon concludes. ●

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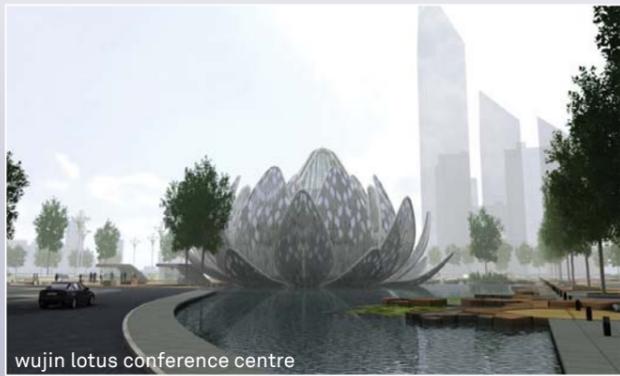
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federation square



wujin lotus conference centre



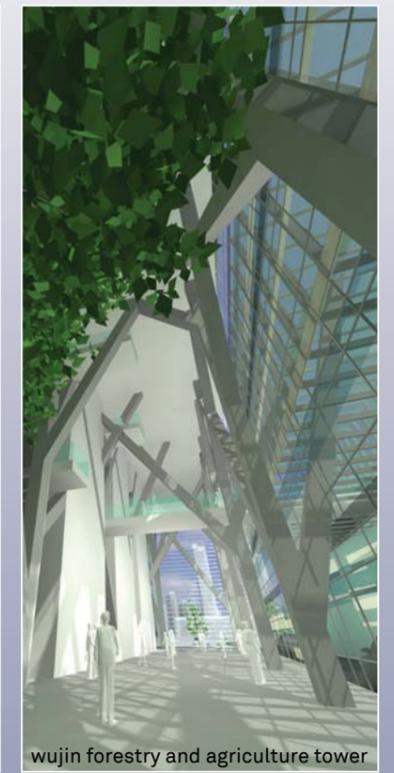
suzhou facade



jurong hospital singapore



wujin forestry and agriculture tower



wujin forestry and agriculture tower



expo 2005 japan



jurong hospital singapore



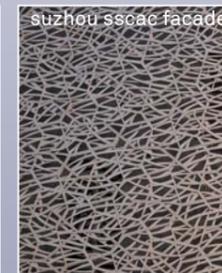
boronia shade structures



wujin phoenix valley



royal domain art wall



suzhou sscac facade



jurong hospital



jurong hospital singapore



pixel australia



jurong hospital singapore



wujin tower gardens



wujin phoenix valley interiors



wujin lotus conference centre



wujin forestry tower

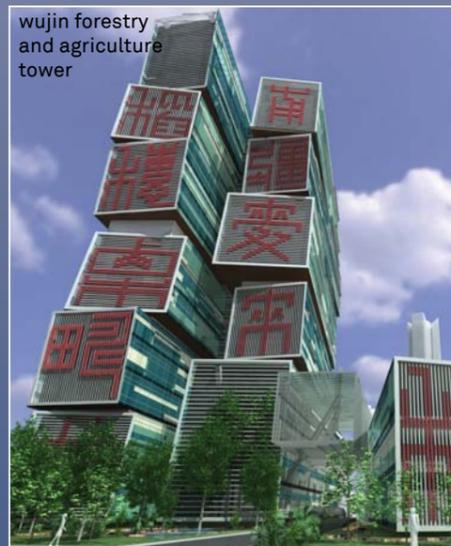


wintergarden facade australia

wintergarden australia



barangaroo urban design australia



wujin forestry and agriculture tower



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ENGAGING WITH INDUSTRY

In 2010, the Green Building Council of Australia introduced a new Industry Engagement team and a reinvigorated program of industry activities.

The council's change in focus is the result of recent successful industry engagement exercises with our members and follows feedback that the industry would like to be more actively involved in the GBCA's direction and activities.

According to Executive Director, Suzie Barnett, who is responsible for driving the new program, the Industry Engagement team 'thinks' by state and market sector.

"We're developing state-specific and sector-specific strategies that take into account local market conditions, stakeholder groups, barriers to building green and existing government incentives and policies," she says.

"The Green Building Council of Australia's goal is to be the leading provider of sustainable built environment tools, knowledge and influence in every state and across all major property sectors. With our new team 'on the ground' in each region, collecting market intelligence and driving customised activities to increase the uptake of Green Star and member value, we are confident we can turn this goal into a reality."

Coronation Drive Office Park Building 4
5 Star Green Star – Office As Built v2



"We are confident these new changes will add extra value to Green Building Council of Australia membership. Together, we are a powerful and active voice with state, local and national governments and will influence the future direction of green building in our regions."

Suzie Barnett, Executive Director - Industry Engagement
Green Building Council of Australia

Two new industry engagement managers, Toufik Refki and Tanya Parker are working closely with member companies in each state to develop events and education programs which continue to accelerate the green building industry in their states.

Head of Industry Engagement, Trudy-Ann King, has a national focus and is responsible for industry engagement sector strategies. Trudy-Ann is an experienced green building advocate, having previously been the GBCA's State Manager for Victoria, South Australia and Tasmania, as well as the Asia Pacific Network Manager for the World Green Building Council.

"We feel it's important that the Green Building Council of Australia steers clear of a 'one size fits all' approach. Instead, we want to be able to respond to the unique needs of businesses in each state, property sector and differing government and industry objectives," King says.

In addition to the new industry engagement program, the GBCA has implemented a new case management system, with Green Star certification case managers given responsibility for all registered projects in one state. This will mean state project teams can be assured continuity when working on multiple Green Star projects. ●

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City of Melbourne CH2

6 Star Green Star – Office Design v2

6 Star Green Star – Office As Built v2

Photography Dianna Snape

GREEN BUILDING AT THE **GRASSROOTS LEVEL**

The phrase ‘think global, act local’ is more relevant than ever after the disappointment of international climate change negotiations over the last few years.

With no direct collaborative global action on climate change in sight, many local communities around Australia are focused on home-grown, grassroots initiatives that can make a difference to climate change, the environment and local economies.

Recognising the important role local governments play in this process, in 2010 the GBCA established a Local Government Task Group (LGTG) to engage with local councils on green building issues, identify opportunities and barriers, and provide guidance on the use of Green Star.

The GBCA appointed Wayne Wescott, sustainability consultant and former Chief Executive Officer of the International Council for Local Environmental Initiatives (ICLEI) Oceania Secretariat, to chair the LGTG. Task Group members have been appointed for their technical expertise and industry knowledge.

According to Wescott, local governments around Australia have identified two areas over which they can exert control and influence: the buildings they own, including facilities such as leisure centres and neighbourhood centres; and their role in the development process in their municipalities for both major renovations and new projects.

“A number of councils have been promoting and implementing green building programs for a number of years – from developing iconic buildings such as the City of Melbourne’s CH2 through to mandatory local laws to ensure minimum energy efficiency standards,” Wescott says.

“Some councils are beginning to use standards such as Green Star to set the benchmark for their wider municipalities’ buildings. They are also contributing to the development of new tools, such as the Green Star – Communities tool which extends best practice benchmarks to a neighbourhood and precinct level.”

In order for local governments both to meet these standards themselves and to work with their communities to do so, the GBCA is collaborating closely with member councils to deploy its large-scale education process that builds skills, technical capacity and aggregated knowledge in all relevant sectors. →



City of Melbourne CH2

6 Star Green Star – Office Design v2
6 Star Green Star – Office As Built v2

The GBCA has an online portal, the *Green Guide to Government Policy*, free to all members, which outlines green building programs and incentives at all levels of government around Australia. This is a useful resource for local governments wanting to compare and contrast their policies with best practice examples around Australia.

While many local governments have been promoting and implementing green building programs for a number of years, the GBCA hopes its new task group will further this trend by encouraging the uptake of voluntary rating tools, offering practical advice and assistance and educating councils on best practice measures implemented by similar organisations around the world.

“The LGTG will integrate local governments’ efforts with other sectors – from developers to householders – to demonstrate that significant small-scale action across our nation can be aggregated towards major change,” Wescott explains.

“We aim to see more local governments take on the role of ‘green change agents’ and lead the way in the adoption of sustainable building and eco-friendly business practices. By acting local, while thinking global, we hope that councils will continue to influence the future direction of green building in Australia.” •

We aim to see more local governments take on the role of ‘green change agents’ and lead the way in the adoption of sustainable building and eco-friendly business practices.



NHP

NHP Electrical Engineering Products is proud to be a part of one of University of New South Wales’ first buildings aiming for a “5 Star Green Star - Education Design v1” rating.

The recently opened Lowy Cancer Research Centre at the UNSW is the first centre in Australia to bring together childhood and adult cancer research at the one site. The \$100 million-plus state-of-the-art facility houses up to 400 researchers from UNSW and the Children’s Cancer Institute of Australia, and is one of the largest dedicated cancer research centres in the Southern Hemisphere.

NHP PROJECT PROFILE

NHP PROVIDES POWER DISTRIBUTION SOLUTION FOR LOWY CANCER RESEARCH CENTRE

NHP POWER DISTRIBUTION

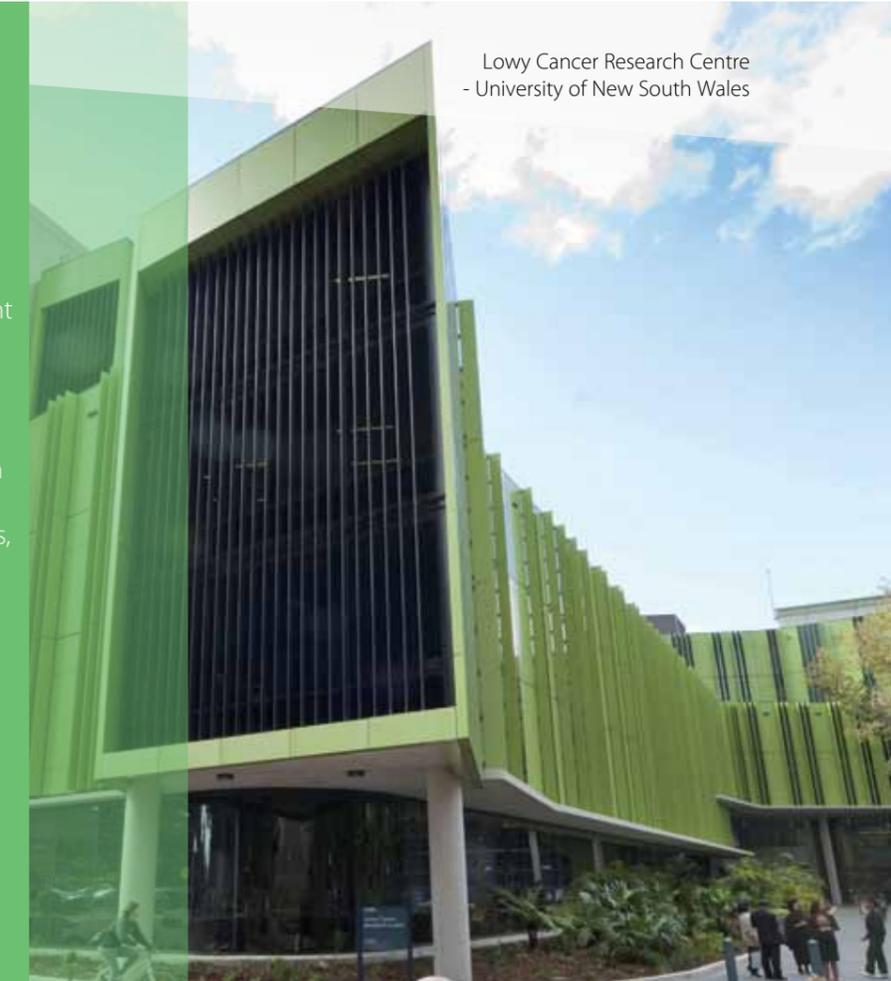
- Terasaki air and moulded case circuit breakers
- NHP Powersafe distribution boards
- Cirprotec surge protection
- Terasaki RCBOs and MCBs

Electrical isolation using NHP Concept Powersafe Switchboards was important for two reasons:

- the safety of personnel, which is paramount in any situation
- in the C25 facility, accidental switch off could comprise time based experiments within the laboratories, jeopardising on-going research



Lowy Cancer Research Centre
- University of New South Wales



International Leader ship

The challenges we face, such as climate change and sustainable economic development, are global in nature and will require global solutions. Australia has proudly taken a leadership role in the green building field, and has much to share with emerging green building councils. At the same time, we have much to learn by collaborating with our counterparts to promote green ideas, technologies and techniques - and work together to achieve a common goal for both buildings and communities.

ASIA PACIFIC NETWORK GROWS

The Green Building Council of Australia's Asia Pacific Committee, established in 2009, has evolved into an international committee. This committee will consider issues surrounding the GBCA's interaction with green building councils and organisations from all other countries. The World Green Building Council (WorldGBC) has assumed responsibilities for the Asia Pacific Network, which is now co-chaired by the green building councils of Australia and Singapore.

WORKING WITH HONG KONG GREEN BUILDING COUNCIL

We signed a Memorandum of Understanding (MoU) at Green Cities 2010 which aims to enhance collaboration and accelerate the universal adoption of sustainable building practices.

OPPORTUNITIES IN INDIA

An MoU, signed with the Indian Green Building Council in October 2010, is set to deliver sustainable building benefits to India and provide opportunities for Australian investors, developers and service providers with expertise in green building.

DELEGATION FROM THE CHINA GREEN BUILDING COUNCIL

Six green building leaders from China visited Sydney, Brisbane and Melbourne to see first-hand best practice examples of green building designs and technologies. The visit, supported by Lend Lease, was the result of our 2009 MoU with the ChinaGBC, which aims to foster collaboration on green building research, skills development and business exchanges.

RELATIONSHIP BUILDING WITH CHINA

The GBCA's Chief Executive, Romilly Madew, was invited to present at a number of green building conferences in China in 2010, and participated in Austrade's delegation to the Shanghai Expo.

SUSTAINABLE BUILDING A FEATURE AT 2010 WORLD EXPO IN SHANGHAI

Three members of the GBCA, Bovis Lend Lease, Bluescope Steel and Aurecon, were involved in the design, project management, construction and materials for the Australian Pavilion – showcasing some of Australia's green innovations to an audience of 70 million.

WORLDGBC POLICY TASKFORCE

The GBCA's Chief Executive, Romilly Madew, and Executive Director of Advocacy and International, Robin Mellon, are members of the WorldGBC's Policy Taskforce, which oversees international green building and cities policy development, research, progression of the sectoral agreement and the management of World Green Building Week.

TACKLING GLOBAL CLIMATE CHANGE, MEETING LOCAL PRIORITIES

The GBCA was involved in the development of the WorldGBC's 2010 report, which provides an overview of what proactive government and private sector initiatives can do to harness the potential of green buildings to deliver important social, economic and environmental benefits for people around the world.

THE WORLDGBC CONGRESS AND SINGAPORE GREEN BUILDING COUNCIL CONFERENCE

The WorldGBC Congress and Singapore Green Building Council Conference was held in Singapore in September 2010, and the GBCA and its members participated in many of the sessions. Tony Arnel, Romilly Madew and Robin Mellon joined 39 other green building councils from around the world to launch the WorldGBC's report and consider the role that buildings can play in climate change mitigation and adaptation in both developed and developing countries.

DEVELOPING A COMMON CARBON METRIC

We are working with the WorldGBC, the Sustainable Building Alliance and UNEP-Sustainable Buildings and Climate Initiative to enable key ratings tools – LEED from the United States, BREEAM from the United Kingdom and Australia's Green Star – to be used to measure and validate emission reductions in a clear and consistent way.

SECTORAL AGREEMENT A STEP CLOSER

The GBCA is taking a lead role in the development of a global Green Building Agreement, which will establish a clear and compelling case for tackling greenhouse gas emissions from the building sector by way of a multilateral agreement supported by industry, governments and other stakeholders.

WORLD GREEN BUILDING WEEK

GBCA member companies hosted site tours, educational workshops, product launches and panel discussions to support World Green Building Week, which aimed to educate and encourage the wider community to embrace green building. Events were held around the world to celebrate and promote World Green Building Week.

MENTORING

The GBCA continues to share its experience and knowledge through mentoring emerging GBCs around the world, especially in the Asia Pacific, such as Indonesia, Sri Lanka, Israel and Sweden. Chief Executive, Romilly Madew, also chairs the WorldGBC Council Development Committee. ●



The potential of the built environment to deliver cost effective, global carbon emission reductions is unrivalled.

GREEN BUILDINGS: **THE WORLD'S FASTEST GROWING INDUSTRY**

• Jane Henley, Chief Executive Officer
World Green Building Council

The building sector is responsible for 40 per cent of the world's energy use and more than a third of global greenhouse gas emissions.

The most recent report from the Intergovernmental Panel on Climate Change (IPCC) estimated that building-related emissions totalled 8.6 billion metric tons in 2004, and could almost double by 2030 to reach 15.6 billion metric tons.

At the same time, the potential of the built environment to deliver cost effective, global carbon emission reductions is unrivalled. The United Nations Environment Programme (UNEP) has argued that "no other sector has such a high potential for drastic emission reductions."

MEASURING AND MANAGING CARBON EMISSIONS

The first step towards managing the carbon emissions from the building sector is to measure them, because 'what gets measured gets managed'. However, in the absence of building sector-specific metrics, accurately measuring the carbon performance of buildings poses a serious challenge – and making meaningful comparisons or establishing baselines for target setting is virtually impossible.

Enter the Common Carbon Metric project. →

GREEN STAR SPECIFICATIONS



Architects, specifiers and painters can be confident when specifying Wattyl low VOC products for Green Star projects, regardless of colour. Project liaison available to Design Managers, Architects, Builders and Applicators including specification writing for your projects.

- Wattyl was the first to introduce an ultra premium low VOC paint with all the performance benefits that you would expect from ultra premium paints. Wattyl Interior Design i.d contains less than 1 gram per litre of VOCs untinted or when tinted with Wattyl Eco Tint.
- Wattyl Interior Design i.d is approved to APAS 0215 and is certified by Good Environmental Choice Australia.
- Wattyl was the first to introduce a low VOC tint system, Wattyl Eco Tint, nationally in the architectural and decorative paint market.

- Wattyl continues to deliver professional products that exceed green building standards.
- Wattyl Professional Choice Clean Air range contains less than 3 grams per litre of VOCs untinted or when tinted with Wattyl Eco Tint.



green building council australia
MEMBER 2010-2011

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In partnership with the UN Sustainable Buildings & Climate Initiative and the Sustainable Building Alliance, the World Green Building Council (WorldGBC) is driving the project to ensure we have a globally-accepted methodology for measuring the carbon performance of our building stock. Without this common methodology, we cannot report consistently, or make meaningful comparisons on a global scale.

The Common Carbon Metric project has three specific goals:

- **Benchmarking:** to provide a consistent reporting frameworks for both industry and government that works in a local and international context.
- **Baselining:** to support consistent reporting of operational carbon footprints from buildings and enable comparisons of buildings across cities and countries, and provide a basis for funding allocations and international agreements.
- **Monetising:** to provide a consistent measurement basis for monetisation of carbon trading measures for the building sector, which will in turn stimulate market activity by incentivising energy efficiency.

Robust carbon accounting within the built environment is becoming increasingly urgent as policy makers seek to access abatement opportunities. At the same time, leading property companies are looking to quantify and achieve recognition for emissions reductions in the buildings they design, construct, own and operate.

TACKLING GLOBAL CLIMATE CHANGE, MEETING LOCAL PRIORITIES

We know that climate change is a problem which transcends international boundaries. As the largest international organisation influencing the global green building market, the WorldGBC is the collective voice of almost 80 established, emerging and prospective green building councils around the world. We are working together to tackle the global challenges of climate change while also meeting a wide range of socio-economic local priorities – from affordable housing and energy security through to economic stimulus and job creation.

The priorities identified by our green building councils are not homogeneous. While the business case for green building has been clearly established in mature markets such as the USA, UK, Australia and Canada, in developing countries the shift to green must be balanced with the need to address the legitimate aspirations of millions of people who still have no access to electricity, clean water or adequate shelter.

In September, the WorldGBC released a new report, *Tackling Global Climate Change, Meeting Local Priorities*, which highlights how green buildings can play a valuable role in meeting local needs worldwide, including in areas hit by natural disasters, as well as providing the most cost-effective way of tackling climate change.

Buildings are no longer viewed as simple 'services', but rather, as central to business performance, community development and a nation's ability to provide a high-quality life for all its citizens.

In the past some thought we could only address environmental concerns when the going was good and that 'green' had to take a back seat to economic growth when times got challenging. This report shows that to be a false choice. We have a growing evidence base of international examples in which homes, buildings and communities are addressing pressing local needs and reducing carbon emissions at the same time.

Our challenges are immense, but as the WorldGBC's network grows, so does our impact on everyday business decisions. The growth of the global green building market is underpinned by the increasing understanding of the long-term value of green building. Buildings are no longer viewed as simple 'services', but rather, as central to business performance, community development and a nation's ability to provide a high-quality life for all its citizens. Green building councils around the globe are at the forefront of this paradigm shift. ●

Tackling Global Climate Change, Meeting Local Priorities is available for download from the WorldGBC website: www.worldgbc.org

THE GREEN BUILDING COUNCIL OF AUSTRALIA

MAKES HISTORY

<p>July 2002 Green Building Council of Australia formed by Ché Wall; Brendan Crotty appointed Chair; Maria Atkinson appointed Chief Executive</p>	<p>July 2003 Launch of Green Star – Office Design v1</p> <p>October 2003 Green Building Conference held at Sydney Olympic Park</p>	<p>January 2004 First Green Star Accredited Professional course is held</p> <p>April 2004 Green Star – As Built v1 rating tool released</p>	<p>October 2004 8 Brindabella Circuit at Canberra International Airport becomes the first Green Star certified building</p> <p>February 2005 Green Star – Office Design v2 rating tool released</p>	<p>February 2005 Green Star – Office As Built v2 rating tool released</p> <p>April 2005 CH2 achieves first 6 Star Green Star – Office Design v1 rating</p> <p>May 2005 Green Star – Office Interiors v1 rating tool released</p>	<p>August 2005 1,000th Green Star course participant</p> <p>October 2005 30 The Bond in Sydney achieves first Green Star – Office As Built rating</p> <p>November 2005 Craig Heaton becomes GBCA Chair</p>
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The practice of building in harmony with the planet goes back millennia. Since prehistoric times, building designers used local and natural materials and considered how nature's elements – wind, water, sun and soil – would affect the integrity and performance of their building structures.



<p>February 2006 Romilly Madew appointed Chief Executive of GBCA</p> <p>April 2006 Australian Research Council Fitout achieves first Green Star – Office Interiors rating</p>	<p>February 2007 500 Collins Street is the first refurbishment of a CBD commercial building to achieve a Green Star rating</p> <p>February 2007 100 projects registered for Green Star certification</p> <p>February 2007 New Zealand GBC adopts Green Star</p>	<p>March 2007 First Green Cities conference held in Sydney</p> <p>May 2007 Tony Arnel elected Chairman of GBCA</p> <p>May 2007 GBCA has 300 member organisations</p>	<p>November 2007 GBCA plants 500 trees in Bexley, NSW, to commemorate 5 years</p> <p>February 2008 Orion Springfield Town Centre becomes Australia's first Green Star shopping centre</p>	<p>March 2008 75% of projects aim for 5 or 6 Star Green Star ratings</p> <p>June 2008 Bond University Mirvac School of Sustainable Development awarded the first Green Star education rating</p>	<p>August 2008 Green Star – Education v1 and Green Star – Retail Centre v1 rating tools released</p> <p>March 2009 Green Guide to Government Policy launched</p>
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Left
8 Brindabella Circuit
5 Star Green Star – Office Design v1
First Green Star Certified Building

Above
500 Collins Street
5 Star Green Star – Office Design v1
First refurbished Building

The practice of building in harmony with the planet goes back millennia. Since prehistoric times, building designers used local and natural materials and considered how nature's elements – wind, water, sun and soil – would affect the integrity and performance of their building structures. However, building designers and developers from ancient times to the twentieth century rarely thought about the reverse side of this equation: how their buildings would affect the elements and the environment in which they operated.

In Australia, the green building movement only gained momentum after the Sydney Olympics in 2000 received worldwide recognition as the 'Green Games'. With venues and facilities that established new benchmarks in design excellence and best practice in sustainability, Australia's property and construction industry demonstrated that green buildings were indeed achievable and practicable.

But at the time, the industry had no metrics or agreed methodology to measure green building practices, no assessment tools and no benchmarks for best practice. There was no organised approach to knowledge sharing or collaboration. Nor was there any way for the industry to promote or profit from green building leadership.

In 2002, a group of green building pioneers recognised the need for an independent organisation to develop a sustainable property industry in Australia and drive the adoption of green building practices. The Green Building Council of Australia had arrived. →

And as Australia becomes more dependent on green collar jobs, exports and knowledge, the Green Building Council of Australia will continue to provide a strategic and sustainable roadmap for the future.

April 2009

Stockland's HQ awarded 100th Green Star certification

May 2009

First Green Star residential project, The Summer in Perth, achieves a 4 Star Green Star rating

June 2009

Green Star – Healthcare v1 rating tool launched

June 2009

World's greenest convention centre in Melbourne, with 6 Star Green Star rating, officially opens

July 2009

Green Star – Multi Unit Residential v1 rating tool launched

August 2009

The GBCA's headquarters, The GreenHouse, achieves a 5 Star Green Star – Office Interiors rating

August 2009

The GBCA and VicUrban agree to drive the development of the Green Star Communities project

Sept 2009

Inaugural World Green Building Day

February 2010

Continuing Professional Development program launched

April 2010

Local Government Task Group established

April 2010

Lot 12 TradeCoast Central becomes Australia's first Green Star industrial facility

May 2010

Green Star – Industrial v1 rating tool launched

June 2010:

Pixel Building awarded 250th Green Star certification

August 2010:

National Framework for Sustainable Communities launched

In October 2002, the senior executives of twelve member companies were elected to the first Board of Directors. Brendan Crotty was appointed Chair, with Maria Atkinson becoming the first Executive Director. The founding board members (in order of appointment) were:

- Ché Wall, Lincolne Scott
- Brendan Crotty, Australand (Chair)
- Craig Heaton, ING Real
- Peter Verwer, Property Council of Australia*
- Ken Maher, Hassell
- Maria Atkinson (Executive Director)
- Sue Holliday, Department of Planning NSW
- Richard Sebo, RMIT
- Tony Arnel, Building Commission Victoria*
- Michael Scrafton, Department of Defence
- Michael Barnes, ISIS*
- Chris Waggett, Principal Real Estate Investors
- Daniel Grollo, Grocon*

In its early days, the GBCA's top priority was the development of an industry-driven, national green building tool with which to evaluate the environmental impact of buildings, improve occupant health and productivity and achieve real cost savings, while showcasing innovation in sustainable building practices. Green Star was launched in July 2003 to provide a framework to measure a building against a range of criteria – from materials selection to indoor environment quality, from water efficiency to waste avoidance, and from re-use to recycling.

As Green Star began to receive recognition in the market, the GBCA began training designers, architects, engineers and project managers on the application of Green Star. The first Green Star Accredited Professional course was held in January 2004. Seven years later, more than 18,500 people have gained the skills to competently apply the Green Star tools to benchmark and scope their building design and construction.



In October 2004, 8 Brindabella Circuit at Canberra International Airport became the first Green Star certified building, achieving 5 Star Green Star – Office Design v1 rating. This was followed soon after by the City of Melbourne's CH2, which became an icon of 'world leadership' with the first 6 Star Green Star – Office Design v1 rating.

Since then, the Green Star suite has expanded to include environmental rating tools for office interiors and completed buildings as well as schools and university facilities, retail centres, healthcare and industrial facilities, and multi-unit residential dwellings. In 2010, the GBCA embarked on its biggest challenge yet – to develop a tool able to assess new and existing communities against best practice sustainable benchmarks.

Today, the Green Building Council of Australia has grown to represent more than 900 member companies. Australia's green building practices, processes and technologies are recognised as world class, and the GBCA has become an internationally influential member of the World Green Building Council.

As the world wakes up to the costs of climate change, the green building industry will continue to expand.

And as Australia becomes more dependent on green collar jobs, exports and knowledge, the Green Building Council of Australia will continue to provide a strategic and sustainable roadmap for the future.

As corporations, governments and individuals recognise the benefits of green buildings not only to the environment, but also to productivity, profitability and people, green buildings will become the accepted standard. ●

2009

2010

Left

The Summer

4 Star Green Star
– Multi Unit Residential PILOT
First Residential Green Star Building

Right

Lot 12, Trade Coast Central

4 Star Green Star – Industrial PILOT
First Industrial Green Star Building



*Remains a member of the Green Building Council of Australia's Board of Directors in 2010.

The staff at the Green Building Council of Australia recognise that it's not enough to encourage other companies to go green.

WALKING OUR TALK

THE GBCA'S SUSTAINABILITY POLICY

The GBCA's sustainability initiatives are implemented by a team of green champions known as the 'Environmental Sustainability Squad', who provide environmental sustainability advice, expertise and support to the GBCA staff and executive.

According to Executive Director, Suzie Barnett, who leads the GBCA's Environmental Sustainability Squad, "our environmental leadership is expressed not only by our Green Star environmental rating system but also by how we operate as an organisation.

"Our biggest achievement in 2010 was attaining a 5 Star NABERS Energy rating for our headquarters, The GreenHouse. Not only has our green office attained a 5 Star Green Star – Office Interiors v1.1 rating, but it can now boast the highest rating achievable under the NABERS system. Most importantly, we've been awarded our 5 Star NABERS rating without the purchase of green power, which is what many offices must do to achieve this level of rating," Barnett explains.

The GBCA staff are challenged to think about every decision that impacts the environment and to find ways to apply the 'reduce, reuse, recycle' equation to work, home and everything in between.

The GreenHouse
5 Star Green Star – Office Interiors v1.1



SOME OF THE SUSTAINABILITY INITIATIVES IN 2010 INCLUDE:

Offsetting carbon emissions

By purchasing 50 per cent Green Power and 50 per cent Gold Power from Climate Friendly, the GBCA offsets its power with 'carbon credits' in renewable energy projects in Australia, as well as projects in developing countries. We are also offsetting all business-related flights with Climate Friendly.

Green Lunchbox sessions

We're supporting staff with education about environmental sustainability issues, challenges and initiatives. In 2010 our staff attended exclusive lunchtime sessions with leading green building ambassador, Caroline Pidcock, Paul Harding-Davis from Australian Ethical Investment, as well as James Lewis from Climate Friendly.

Reduce, reuse, recycle

We continue to find new ways to live green, such as removing individual waste bins to encourage people to think before putting waste to landfill.

GBCA Procurement Guide

We've developed an easy-to-use, thorough, green procurement guide that reflects the GBCA's environmental ethos and outlines commitments to purchasing sustainable office and IT equipment, consumables, stationery, services and appliances.

Spreading the green word

We send out bi-monthly newsletters to all staff to share sustainability initiatives, encourage green thinking and foster a positive company culture.

'No fly' month

Each member of the leadership team has agreed to at least one 'no fly month' each year to lessen our collective environmental impact. The GBCA's Chief Executive, Romilly Madew, was the first to take up the challenge. "Other than saving on greenhouse gas emissions, the benefits of not flying for a whole month were profound: being in the office to support the new team structure and the work/life balance I gained were fantastic by-products of staying grounded," she says.

We hope our sustainability policy will help to establish a benchmark for our member organisations, green groups and not-for-profit organisations to follow. ●

NORTHROP Sustainability

Northrop Sustainability is our specialist environmental design group, operating nationally from our NSW, ACT and QLD offices. Our strength is in providing sustainability advice to drive development projects toward holistic, integrated and sustainable design solutions. We focus on creativity and adding value. Our clients are among the leading property professionals in Australia and have been rewarded with improved marketability, resource efficiency and cost feasibility.



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Karen Billington Sustainability Consultant kbillington@northrop.com.au PH: 0401 334 452

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In a typical city, 47% of all energy is consumed by buildings.
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GREEN CITIES 2010:

PEOPLE, PLACE, PERFORMANCE



“Getting and keeping top talent will soon be the number one reason for going green.”

Jerry Yudelson, green building author

If there was one message to be taken from Green Cities 2010, held in Melbourne in February 2010, it was ‘act now’. The conference, which explored the importance of green building to ‘people, place, performance’, confirmed how far our industry has travelled in such a short time.

Since Green Cities 2009, the conversation has shifted beyond individual buildings to how we should shape our precincts, our communities and our cities.

Opening the conference, former Victorian Premier John Brumby reminded the audience that we live in “a climate of opportunity”. While the task has never been greater, it was clear from the energy, ideas and commitment of those attending Green Cities 2010 that we can leave behind a built environment that is as good – or better – than what went before.

From 27 February to 2 March 2011 Australia’s – and the region’s – green building industry will gather at the world’s greenest convention centre in Melbourne for Green Cities 2011: Partnering for Solutions.

The conference will set its sights beyond buildings, with a focus on greening our precincts and communities. Attendees will be encouraged to commit to the realities and possibilities of green building, challenge themselves to exceed business-as-usual expectations and create solutions, partnerships and prospects.

One of the expected highlights will be Jeb Brugmann, author of the book, *Welcome to the Urban Revolution: How Cities Are Changing the World*, who will focus on issues around urbanisation and densification of our cities and the economic drivers and financial models associated with building places, rather than building products.

Jeb Brugmann’s ‘new urbanisms’ have affected countless major cities and governments worldwide, based on his unique economic analytics and business modelling which accept the reality that cities will grow in success from “creatively adapting urban design, infrastructure, building methods, policy and governance to create places of unique value and advantage.”

Michael Green, Principal of Canadian architecture firm McFarlane Green Biggar Architecture will also speak at the conference. Green’s current work ranges from small houses to animal shelters, from restaurants and cafes to skyscrapers, from fashion boutiques to international airports and from civic buildings and galleries to urban revitalisation and parks and public art.

“I believe architects have a duty to address the problems of our profession as it relates to climate change, much in the same way as doctors address an accident scene – through triage,” Green says.



“Triage asks us to tackle the most serious issues first and then work our way to the less significant. Triaging buildings means to look at the impact of the materials and the energy consumed during construction and during the life of the building first.

“Often today’s ‘green architecture’ is a practice of covering up the small scratches and ignoring the massive wound. I believe the issue of the materials with which we build is one we can address easily to make an enormous difference that will lead us to carbon neutral and, in time, carbon negative buildings.”

Now entering its fifth year, Green Cities continues to evolve as a platform for world leaders, local experts and government visionaries. Together, we’re shaping the future of our cities. ●

FLYING THE GREEN FLAG FOR WORLD GREEN BUILDING WEEK



*Gaining momentum in 2010,
World Green Building Week acts
as an accelerant for change.*



In September 2010, Australia's green building industry joined forces, as part of World Green Building Week, to promote the important role that buildings play in tackling climate change.

World Green Building Week was held from 20-24 September 2010 to showcase sustainability initiatives in the built environment. An initiative of the World Green Building Council (WorldGBC), World Green Building Week featured synchronised green building events in more than 18 countries around the world.

In Australia, the GBCA held a Green Tie Gala Dinner, during which the Chairman of the World GBC and GBCA, Tony Arnel, launched a new report, *Tackling Global Climate Change – Meeting Local Priorities*.

This report provides an overview of what proactive government and private sector initiatives can do to harness the potential of green buildings to deliver important social, economic and environmental benefits for people around the world.

Tony Arnel reminded the audience at the Green Tie Gala Dinner that building green shouldn't be for a day or a week or a year. "I think it should be a decade," he said.

"If we don't start to reduce our carbon footprint in the next ten years then we will be failing our children and grandchildren. We should consider the last ten years as an experiment... In the next decade, we need to work towards major policy reforms globally, carbon neutral buildings being the norm, action for retrofitting and we need to support our developing nations as they expand their built environment."

Thank you to all the GBCA member companies who hosted site tours, educational workshops, product launches and panel discussions to support World Green Building. Events in Australia included:

- The GBCA's Green Tie Gala Dinner featured James Sherrard, who shared stories from his years building green in some of the most dangerous and challenging countries in the world
- The GBCA hosted networking drinks with the China Green Building Council

Green Tie Gala Dinner
Drinks on the balcony

- Investa launched the Green Buildings Alive! website which shares data from 53 Australian commercial properties over a 7 year period, and invites other building owners to contribute their data
- WSP Lincolne Scott ran an internal thought-leadership competition asking staff to imagine what a green building will, or should, look like in World Green Building Week in 2020
- Site tours were held by Stockland, Port of Brisbane, Rockcote and RDA Illawarra
- Workshops and industry forums were staged by Cadgroup Australia, Australand, Gunnensen, the Society for Sustainability and Environmental Engineering and the City of Wanneroo
- AMP Capital displayed its sustainable evolution in foyers of five offices around Sydney
- RICS shared its best practice, research and resources with industry
- Walton Construction hosted architect Paul Reidy who shared his insights into the acclaimed Ark Building
- Umow Lai held a staff competition with the theme of 'engineering sustainable environments'
- BlueScopeSteel hosted a Q&A panel discussion regarding building design and adaptation to climate change
- Tarkett, Regupol and CMS Office Storage & Filing Solutions all launched new products
- Austrade's ASEAN Infrastructure Team hosted a series of roundtables, workshops and luncheons with representatives from local green building councils, architects, developers and other partners in Indonesia, Malaysia, Singapore, Vietnam and the Philippines. The events showcased Australian capability and attracted considerable interest from across the region with over 90 participants attending.

We look forward to more GBCA member companies joining us in 2011 to celebrate the best of green building and broaden community awareness of the benefits of a sustainable built environment. ●



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5 Star Green Building - CottaPot™ planters
- 7 Eleven Convenience Stores - National**
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LIFTING THE VEIL ON REAL BUILDINGS

'Green Buildings Alive!' asks what would big buildings like to tell us, if they could talk?

'Green Buildings Alive!' was launched during World Green Building Week in September 2010, and has already become a hub for discussion, where professionals and enthusiasts can share findings, test theories and raise questions. Discussions so far have looked at some surprising insights, like:

- Why old buildings can be greener than middle-aged ones
- How a full building can actually use less energy than a partly-occupied one
- Is there a 60 per cent limit on cutting energy use?

The site features a fully public, data-crunching engine to tell the stories of real buildings. The Investa Sustainability Institute (ISI) has taken eight years of measurements from its sponsor's portfolio of more than 50 buildings and has literally 'set them free'. Now, anyone in the world can plot trends ranging from emissions, energy, water, gas, complaints and occupancy to daily temperatures. They can drill down to specific cities or buildings and see data filtered by age, occupancy and more, in order to produce easy-to-understand charts.

We know commercial and residential buildings together generate around 23 per cent of greenhouse gas emissions in this country. Romilly Madew, Chief Executive of the Green Building Council of Australia, says: "We constantly make the case for whole building refurbishments to slash carbon emissions and water use. Now, with Green Buildings Alive, the whole sector can share and see real performance measurements, and not just take our word for it."

MYTHS DISPELLED

Investa's Craig Roussac says, "Improving buildings has to be top of the list for meeting greenhouse targets worldwide. Cuts of over 60 per cent are there for the taking, but we need to lift the bar for existing buildings by sharing real information."

Roussac explains that, "to reduce carbon emissions from buildings rapidly we can't just rely on more efficient equipment – we need to change behaviour too. By making building performance data available to anyone who wants it we can help build knowledge about what works and what doesn't."

PARTICIPATION

Green Buildings Alive has started off by sharing thousands of data-points from the Australian property marketplace. However, the team at ISI says that the early insights are only an indication of wider trends and it can't be assumed that these lessons really apply across the whole sector. ISI is now calling for other organisations to share data, make new visualisations of their own experiences and to help make all buildings work better. ●



To join the discussion, go to:

greenbuildingsalive.com

88 George Street Sydney
5 Star Green Star – Office Design v2

RATING AUSTRALIA'S BUILDINGS THROUGHOUT THEIR LIFECYCLE

TOOL

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Green Building Council of Australia

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Voluntary rating system
gbca.org.au

Office buildings, tenancies and fitouts, retail centres, industrial, healthcare and education facilities, multi-unit residential and public buildings. Communities rating tool to be released in 2012. Performance rating tool to be released in 2012

Management
Indoor Environment Quality
Energy
Transport
Water
Materials
Land Use & Ecology
Emissions
Innovation

Holistic assessment framework addressing all categories and having a single Green Star rating as an output



NABERS

The National Australian Built Environment Rating System (NABERS Energy formerly known as ABGR)

Administered by
NSW Department of Environment, Climate Change and Water, on behalf of the Australian Government

Ratings available
0 to 5 Stars in half star increments
Voluntary rating system, with the exception of NABERS Energy for offices which is used in the CBD program
nabers.com.au

Office, residential, retail, hotels and data centres

Energy
Water
Waste (offices only)
Indoor Environment Quality (offices only)

Categories are rated separately and independently, providing four separate NABERS ratings as outputs



- DESIGN
- CONSTRUCT
- OPERATE
- RETROFIT
- REDESIGN

NatHERS

Nationwide House Energy Rating Scheme

Administered by
Department of Climate Change and Energy Efficiency on behalf of the Ministerial Council on Energy

Ratings available
0 to 10 Stars
Mandatory scheme, written into legislation nationally.
nathers.gov.au

Residential

Potential energy efficiency / thermal comfort, based on layout, construction and orientation according to climate, using various computer software tools including AccuRate, BERS and FirstRate



BASIX

The Building Sustainability Index

Operated by
NSW Department of Planning

Ratings available
BASIX certificate
Mandatory scheme, written into legislation in NSW
basix.nsw.gov.au

Residential

Energy
Water



Five Star (5 Star) Homes

Operated by
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Ratings available:
5 Star standard
Mandatory scheme, written into legislation in VIC
sustainability.vic.gov.au

Residential

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Hastie Group Ltd 02 9714 4732 hastiegroupp.com.au	Konstruk Pty Ltd 03 9372 3304	P. W. Baxter & Associates Pty Ltd 08 8947 1174 pwbaxter.com.au	Scott Built Pty Ltd 0414 853 014 scottbuilt.com.au
Heyday Group 02 9588 6666 hastiegroupp.com.au/heyday	Laing O'Rourke 02 9903 0752 laingourourke.com.au	Paint Professionals 1800 686 525 paintprofessionals.com.au	Sense Projects Pty Ltd 02 9690 1934 senseprojects.com.au
Hickory Developments Pty Ltd 03 9429 7411 hickory.com.au	Leighton Contractors Pty Limited 07 3215 4305 leightoncontractors.com.au	Partek Industries 08 8351 7633 partek.com.au	Shamrock Electrical Pty Ltd 02 9316 7166 shamrockelectrical.com
Hooker Cockram Projects Ltd 03 8862 8888 hookercockram.com	Lipman Pty Ltd 02 9955 7000 lipman.com.au	PBS Property Group Pty Ltd 02 6101 9800 pbspropertygroup.com.au	Sharp & Pendrey subsidiary of Hastie Group Ltd 02 9794 7966 hastiegroupp.com.au/sharppendrey
Hungerford Project Services Pty Ltd 02 9624 1222 hungerfordps.com.au	Living Green Designer Homes P/L 02 4368 2889 livinggreendesignerhomes.com.au	Powerhouse Group 02 8845 8600 powerhousegroup.com.au	Sphere Projects 02 6259 0017 sphereprojects.com.au
Hutchinson Builders 07 3335 5000 hutchinsonbuilders.com.au	Lotus Folding Walls & Doors Pty Ltd 03 9771 8200 lotusdoors.com.au	Premier Painting Company 02 9389 9069 premierpainting.com.au	St Hilliers Construction Pty Ltd 02 9259 5217 sthilliers.com.au
Ichor Constructions Pty Ltd 02 8372 0700 ichor.com.au	M&H Air Conditioning Pty Ltd 02 4954 9606 hastiegroupp.com.au/mhair	Prestige Joinery NSW 02 9580 8200 prestigejoinery.com.au	Star Group 02 9708 7555 starelectrical.com.au
ICMG 02 8399 3655 icmg.com.au	Maxim Renewable 03 9490 9999 maximrenewable.com.au	Prime Constructions (QLD) Pty Ltd 07 4041 3222 theprimegroup.com.au	Steele Associates 02 9319 0333 steeleassociates.com.au
Inscope Solutions 02 9181 2900 inscope.com.au	Mechanical Project Management Pty Ltd 08 9202 4666 mpm-group.com.au	Priority Building 07 3666 2532 priority.net.au	Stowe Australia 07 3423 6777 stoweaustralia.com.au
Intact Projects Pty Ltd 02 9708 1533 intactprojects.com	Mechatronic Developments Pty Ltd 02 9894 0688 mechatronic systems.com.au	Projectvision Construction Pty Ltd 02 9748 8831 projectvision.com.au	Superior Walls & Ceilings 07 5596 7500 superiorgroup.com.au
Interior Logistics Pty Limited 02 9922 2993 interiorlogistics.com.au	MilliCare Australia 02 9713 8339 millicare.com	Quad Services Pty Ltd 02 8425 6900 quadservices.com.au	Sunshine Palm Supplies P/L T/A Gaddy's Indoor Plant Hire 02 9606 6826 gaddysplanthire.com.au
Intermain Pty Ltd 02 9318 2272 intermain.com.au	Mossop Group Pty Ltd 08 8268 8699 mossop.com.au	Quadric Pty Ltd 07 3274 2794 quadricptyltd.com.au	Tagara Builders Pty Ltd 08 8360 9703 tagara.com.au
Intrec Management Pty Ltd 02 9966 0688 intrec.com.au	MPA Construction Group 02 8202 7325 mpagroup.com.au	Queensland Glass Pty Ltd 07 3890 6099 queenslandglass.com.au	Taylor Construction Group Pty Ltd 02 8884 9000 taylorconstruction.com.au
Ireland Brown Constructions Pty Ltd 03 9428 9899 ibconstructions.com.au	Multiskip 08 9247 8888 transpacific.com.au	R&D Air Supply Pty Ltd 02 9838 8474 r&dairsupply.com.au	TDA Interiors Australia Pty Ltd 02 8088 8700 tdainteriors.com.au
ISIS Group Australia 02 6241 6166 isis.com.au	National Buildplan Group Pty Limited 02 6770 1102 buildplan.com.au	Reed Constructions Australia Pty Ltd 02 9965 0361 reedgroup.com.au	Thiess Pty Ltd 07 3121 8609 thiess.com.au
JBW Central Vacuum Systems 03 5678 7601 jbwtech.com.au	Next Constructions 02 9550 6100 nextconstructions.com.au	Reliance Integrated Solutions 1300 735 477 reliancegroup.com.au	Thiess Services 07 3169 8358 thiess-services.com.au
JDV Group 02 9869 7200 jdvgroupp.com.au	Niche Construction Management Pty Ltd 02 9114 9774 nicheconstruction.com.au	Renasant 03 9824 5680 renasant.com.au	Thomas & Coffey Limited 02 9008 2000 thomascoffey.com.au
JGP Electrical Pty Ltd 07 5596 4444	Nikias Diamond Property Developments 02 6282 4039	Resbuild Australia Pty Ltd 02 9789 3345 resbuild.com.au	Total Electrical Connection Pty Ltd 02 9285 8401 totalelectrical.com.au
John Holland Pty Ltd 03 9934 5209 johnholland.com.au	Nilsen NSW Pty Ltd 02 9898 9355 nilsen.com.au	Rest Interior Pty Ltd 02 9708 0633 restinterior.com.au	TPI Toilet Partion Industries Pty Ltd 02 9709 6501 tpi.net.au
John Speare Builder 07 3869 1711	Nilsen QLD Pty Ltd 07 3899 8866 nilsen.com.au	Richard Crookes Constructions Pty Limited 02 9902 4789 richardcrookes.com.au	Transpacific Resource Recycling 02 3372 7555 transpacific.com.au
JV Commissioning Services Pty Ltd 0405 790 112	Nilsen SA Pty Ltd 08 8440 5300 nilsen.com.au	Rotric Pty Ltd 02 9958 1043 rotric.com.au	Triple 'M' Mechanical Services Pty Ltd 02 9763 6216 triple-m.com.au
Kane Constructions NSW Pty Ltd 02 9310 2899 kaneconstructions.com.au	Nilsen Vic Pty Ltd 03 9450 1300 nilsen.com.au	Saunders Plumbing Pty Ltd 07 3256 6933	Tropical Plant Rentals 02 9679 4000 tropicalplantrentals.com.au
Kane Constructions Pty Ltd 03 9428 8888 kaneconstructions.com.au	Nilsen WA Pty Ltd 08 9434 8917 nilsen.com.au	SB3 Construction 03 9938 9899 sb3.com.au	United Commercial Projects Pty Ltd 03 9464 0226 united.net.au
Kane Constructions QLD Pty Ltd 07 3356 9944 kaneconstructions.com.au	Northerly Group Pty Ltd 08 9442 3888 northerly.com.au	Schindler Lifts Australia Pty Ltd 02 9931 9900 au.schindler.com	Valle Commercial Interiors Pty Ltd 07 3847 5277 vallecommercial.com.au
Kell & Rigby Pty Ltd 02 9742 8834 kellrigby.com	Oakbeech Pty Ltd 03 9509 9692 oakbeech.com.au	Schneider Electric Buildings Australia Pty. Ltd 07 3635 7960 schneider-electric.com.au	Vaughan Constructions Pty Ltd 03 9347 2611 vaughans.com.au

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Veolia Environmental Services Pty Ltd 02 8571 0000 veoliaes.com.au	Watpac Construction NSW Pty Ltd 02 8762 1001 watpac.com.au	Watters Electrical Aust PL 03 9646 3333 watters.com.au	Wiley & Co. Pty Ltd 1300 385 988 wiley.com.au
Walton Construction Pty Ltd 02 9462 7600 waltonconstruction.com.au	Watpac Developments Pty Ltd 07 3251 6346 watpac.com.au	Weatherfoil Pty Ltd 03 6273 1088 weatherfoil.com.au	

ENVIRONMENTAL ORGANISATIONS, NGOS

Anglican Diocese of Canberra & Goulburn 02 6248 0811 anglicancg.org.au	Climate Friendly 02 8115 0002 climatefriendly.com	Moreland Energy Foundation Limited 03 9385 8519 mefl.com.au	The Smith Family 02 9754 6305 thesmithfamily.com.au/index.cfm
Australia Israel Chamber of Commerce 02 9326 1700 aicc.org.au	Furntech AFRDI 03 6326 6155 furntech.org.au	National Business Leaders Forum on Sustainable Development 02 6236 8437 ecofutures.com	Western Australian Local Government Association 08 9213 2000 walga.asn.au
Bicycle Victoria 03 8636 8860 bv.com.au	Good Environmental Choice Australia Ltd 02 8242 7781 geca.org.au	Royal Danish Embassy 02 6270 5303 canberra.um.dk	
Brisbane Catholic Education 07 3033 7560 bne.catholic.edu.au	INCLEAN Magazine 04 4225 2200 incleanmag.com.au	The Salvation Army Victoria Property Trust 03 8878 4670 salvationarmy.org.au	

FINANCIAL INSTITUTIONS

ANZ 03 8655 0288 anz.com	Bendigo and Adelaide Bank Group 03 5454 1245 bendigobank.com.au	Macquarie Group Services Australia Pty Ltd 02 8237 9941 macquarie.com.au	National Australia Bank 0437 353 810 nab.com.au
BankWest 08 9449 6023 bankwest.com.au	Commonwealth Bank of Australia 02 9117 5220 commbank.com.au	ME Bank 03 9605 6997 mebank.com.au	

GOVERNMENT – STATE

Barangaroo Delivery Authority 02 9255 1705 barangaroo.com	Department of Health and Human Services 03 6233 2168 dhhs.tas.gov.au	EPA Victoria 03 9695 2816 epa.vic.gov.au	Sustainability Victoria 03 8626 8700 sustainability.vic.gov.au
ACT Property Group, Department of Land & Property Services 02 6205 5316 act.gov.au	Department of Justice Victoria 03 8684 6662 justice.vic.gov.au	Land Development Agency 02 6205 0600 lda.act.gov.au	Sydney Harbour Federation Trust 02 8969 2100 harbourtrust.gov.au
Building Commission VIC 1300 815 127 buildingcommission.com.au	Department of Major Projects Victoria 03 9655 8622 transport.vic.gov.au	Landcom 02 9841 8693 landcom.com.au/default.aspx	Sydney Harbour Foreshore Authority 02 9240 8612 shfa.nsw.gov.au
Department of Transport, Energy & Infrastructure SA 08 8226 5039 dtai.sa.gov.au	Department of Primary Industries, Parks, Water and Environment 03 6233 3067 dpiw.tas.gov.au	LandCorp 08 9482 7566 landcorp.com.au	Sydney Opera House Trust 02 9241 7926 sydneyoperahouse.com
Department of Climate Change and Energy Efficiency 02 6274 1432 climatechange.gov.au	Department of Public Works QLD 07 3227 7513 publicworks.qld.gov.au	Melbourne Convention and Exhibition Trust 0410 220 500 mceec.com.au	VicUrban 03 8317 3400 vicurban.com
Department of Education and Early Childhood Development Vic 03 9637 3108 education.vic.gov.au	Department of the Environment, Climate Change, Energy and Water 02 6205 3021 Environment.act.gov.au	Metropolitan Fire Brigade 03 9420 3769 mfb.vic.gov.au	
Department of Education and Training QLD 07 3404 3441 deta.qld.gov.au	Department of Treasury & Finance Building Management and Works 08 9440 2294 bmw.wa.gov.au	New South Wales Land and Housing Corporation 02 8753 8723 housing.nsw.gov.au	
Department of Environment, Climate Change and Water NSW 02 9995 5438 environment.nsw.gov.au	East Perth Redevelopment Authority EPRA 08 9222 8006 epra.wa.gov.au	Port of Brisbane Corporation 07 3258 4845 portbris.com.au	

GOVERNMENT – LOCAL

Banyule City Council 03 9490 4222 banyule.vic.gov.au	City of Melbourne 03 9658 8417 melbourne.vic.gov.au	City of Sydney 02 9265 9733 cityofsydney.nsw.gov.au	Parramatta City Council 02 9806 5539 parracity.nsw.gov.au
Brisbane City Council 07 3403 8888 brisbane.qld.gov.au	City of Onkaparinga 08 8301 7242 onkaparingacity.com	City Of Yarra 03 9205 5366 yarracity.vic.gov.au	Pittwater Council 02 9970 1133 pittwaterlga.com.au
Campbelltown City Council 02 4645 4833 campbelltown.nsw.gov.au	City of Perth 08 9461 3242 cityofperth.wa.gov.au	Gold Coast City Council 07 5582 8844 goldcoast.qld.gov.au/default.aspx	Town of Mosman Park 08 9384 1633 mosmanpark.wa.gov.au
City of Belmont 08 9477 7222 belmont.wa.gov.au	City of Port Phillip 03 9209 6303 portphillip.vic.gov.au	Hobsons Bay City Council 03 9932 1062 hobsons.vic.gov.au	Town of Vincent 08 9273 6000 vincent.wa.gov.au
City of Gosnells 08 9397 3230 gosnells.wa.gov.au	City of Ryde 02 9952 8263 ryde.nsw.gov.au	Moreland City Council 03 9240 1111 moreland.vic.gov.au	Town of Vincent 08 9273 6000 vincent.wa.gov.au
City of Joondalup 08 9400 4516 joondalup.wa.gov.au	City of Swan 08 9267 9267 cityofswan.com	Mosman Council 02 9978 4043 mosman.nsw.gov	

GOVERNMENT – LOCAL

Waverley Council 02 9369 8094 waverley.nsw.gov.au	Willoughby City Council 02 9777 7538 willoughby.nsw.gov.au	Wingecarribee Shire Council 02 4868 0888 wsc.nsw.gov.au
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Advance Management 03 9336 2200 admanage.com.au	Baenziger Coles Pty Ltd 03 9696 6899 baenzigercoles.com.au	Capital Insight 02 9955 2300 capitalinsight.com.au	DesignInc Adelaide Pty Ltd 08 8223 2888 designinc.com.au
AEC Systems 02 8456 8600 aecsystems.com.au/ecotect.html	Baker Kavanagh Architects 02 9318 9200 bka.com.au	Caverstock Group Pty Ltd 0414 676 704 caverstockgroup.com.au	DesignInc Melbourne Pty Ltd 03 9654 9654 designinc.com.au
AECOM Australia Pty Ltd 02 8295 7504 aecom.com	Bateman Grundmann Architects Pty Ltd 08 9382 8220 bgarchitects.biz	CB Richard Ellis Pty Ltd 02 9333 3445 cbre.com.au	DesignInc Sydney 02 9957 5401 designinc.com.au
AGB Group 03 5221 2611 agbgroup.com.au	Bates Smart Pty Ltd 02 8354 5100 batesmart.com.au	CJ Arms 03 9285 2800 cjarms.com.au	Designing Green places+buildings+interiors 0412 494 341 designinggreen.com.au
ALA Consulting Engineers 03 9690 2299 ala.net.au	BCA Consultants Pty Ltd 08 9321 6255 bcagroup.com.au	Clarence Consultants 02 6642 7239 clarenceconsultants.com.au	Dimond Architects Pty Ltd 07 5451 0988 dimondarchitects.com.au
Allen Jack + Cottier Architects 02 9311 8222 architectsajc.com	BCI Australia 02 9458 1600 bciaustralia.com	Code Green Consulting 02 9371 4419	DMA Professional Engineers 07 3839 3050 dmaengineers.com.au
Altus Page Kirkland 02 9283 7311 altusgroup.com	Bestec Pty Ltd 08 8232 4442 bestec.com.au	Coffey Environments 03 9473 1400 coffey.com	Doig Architecture Pty Ltd 03 9867 2888 doigarchitecture.com.au
Andrews Neil Pty Ltd 02 4324 3633 andrewsneil.com.au	BHI 02 9662 8962 bhia.com.au	Coffey Projects Australia Pty Ltd 02 9460 8470 coffey.com.au	Donaldson + Warn Architects 08 9328 4475 donaldsonandwarn.com.au
Apex Property Consulting Pty Ltd 07 3234 4000 apexproperty.com.au	Bickerton Masters Architecture 07 3257 3622 bmarch.com.au	Collard Clarke Jackson Canberra 02 6247 2077 ccj.com.au	Drew Dickson Architects Pty Ltd 02 9432 2400 dda australia.com
APP Corporation Pty Ltd 02 9957 6211 app.com.au	Billard Leece Partnership Pty Ltd 03 9656 5000 blp.com.au	Confluence Project Management Pty Ltd 02 9258 1991 confluencecpm.com	Eastview Commercial 02 9957 4836 evc.net.au
Aquenta Consulting Pty Ltd 07 3210 1366 aquenta.com.au	Birch Architecture + Design 08 9367 8844 birchgroup.com.au	Construction Assignments Pty Ltd 02 9557 5118 constructionassignments.com	ECM Group Pty Ltd 03 9328 8088 ecmgroupp.com.au
Architectural Link 08 9389 4422 architecturallink.com.au	Birrelli Architects 03 6333 7600 birrelli.com.au	Construction Queen 03 9383 1412 constructionqueen.com	Eco Wheels Pty Ltd 03 9429 9388 businessaide.com.au
Architectus Brisbane Pty Ltd 07 3221 6077 architectus.com.au	Bokor Pty Ltd 02 9212 6656 designedint.com.au	Cox Architecture Pty Ltd 07 3210 0844 coxarchitecture.com.au	Ecolateral Pty Ltd 07 3832 2047 ecolateral.com
Architectus Group Pty Ltd 03 9429 5733 architectus.com.au	Broderick Architects 08 9381 3011 broderickarchitects.com.au	Crone Partners Pty Ltd 02 8295 5300 cronepartners.com	Ecospecifier 07 3399 9686 ecospecifier.org
Architektonic Pty Ltd 03 9669 8400 tektonic.com.au	BSA Architects 07 3394 1177 bsasonline.com.au	Crowley Consulting Pty Ltd 02 9989 8134 crowley.com.au	Ecovation 1300 660 180 ecovation.com.au
Ark Resources 03 9636 0280 ark-resources.com.au	BTF projects 02 8399 3655 btfprojects.com.au	Crown Project Services Pty. Ltd. 02 9252 4420 crownprojects.com.au	Edge Project Management Pty Ltd 07 3229 9712 edgepm.com.au
Arkhefield 07 3831 8150 arkhefield.com.au	Building Services Engineers Pty Ltd 02 9922 5200 bse.com.au	Cundall 02 8424 7000 cundall.com.au	Electrical Design Pty Limited 02 9999 4189
Arqus Design Pty Ltd 07 3358 0888 arqusdesign.com.au	Building Services Hydraulic Design Pty Ltd 07 3889 6888	Daryl Jackson Alastair Swayn Pty Ltd 02 6295 2000 daryljackson.com.au	Elton Consulting 02 9387 2600 elton.com.au
Artas Architects + Planners 03 6331 2731 artas.com.au	Bureau Veritas HSE Pty Ltd 02 9150 6577 bureauveritas.com	Daryl Jackson Robin Dyke Pty Ltd Architects 02 9319 2955 djrd.com.au	EMF Griffiths NSW Pty Ltd 02 9283 8445 emf.com.au
Arup Australasia 02 9320 9480 arup.com	BurnsBridge Sweett Pty Ltd 03 9691 0000 burnsbridgesweett.com	Davis Langdon Australia 02 9956 8822 davislangdon.com	Encycle Consulting 08 9321 8760 encycle.com.au
Ashburner Francis Consulting Engineers 07 3510 8888 ashburnerfrancis.com.au	Burtenshaw Scoufis Architecture 02 9700 7041 bsarch.com.au	Davro Interiors 08 9227 5588 davro.net.au	Energetics 02 9492 9536 energetics.com.au
Aurecon 03 8683 1397 aurecongroup.com	BVN Architecture 02 8297 7200 bvn.com.au	DBI Design Pty Ltd 07 5539 9788 dbidesign.com.au	Energy Concepts Group 07 3278 4375 energyconceptsgroup.com.au
Aurora Projects Pty Ltd 02 8920 1838 auroraprojects.com.au	Cadence Australia Pty Ltd 02 9557 8866 cadenceaust.com	Definity Group 02 8354 1822 definity.com.au	Energy Response Pty Ltd 03 8643 5901 energyresponse.com
BAC Group Architects 07 3422 0900 baegroup.com.au	Cameron Chisholm Nicol 08 6464 1561 ccnwa.com.au	Design Workshop Australia 02 4227 1661 designworkshop.com.au	Engineering Solutions Tasmania Pty Ltd 03 6323 6500 estas.com.au

PROFESSIONAL SERVICES

Engineering Technology Consultants 08 9328 5500 etcpl.com.au	Grimshaw 03 9321 2600 grimshaw-architects.com	Jackson Teece 02 9290 2722 jacksonteece.com	Morley Davis Architects 08 9388 7777
EnvironArc Design Pty Ltd 08 8537 0530 environarc.com.au	Group GSA 02 9361 4144 groupgsa.com	JBA Consulting Engineers Pty Ltd 03 9646 9144 jba.com.au	Morris Bray Architects 02 9439 6622 morrisbray.com.au
EP&T Global 02 8422 6000 eptglobal.com	GS Materials Pty Ltd 07 3902 0640	JCK Consulting Pty Ltd 0410 610 830	MPS Corporate Property Advisors 02 9290 3833 mpscorporateproperty.com.au
epm Projects Pty Ltd 02 9452 8300 epmpjcts.com.au	Habitation 02 9699 1600 habitation.com.au	JHA Consulting Engineers 02 9437 1000 jhaengineers.com.au	MSM Architects 03 9781 4066 msmarchitects.com.au
Equiiva 02 8020 5560 equiiva.com.au	Hames Sharley 08 9381 9877 hamesharley.com.au	JMP Consulting Engineers 03 9600 0366 jmp.com.au	Muller Partnership 02 9660 3177 mullerpartnership.com.au
Equity Development Management 02 9358 3444 equitydm.com.au	Hamilton Hayes Henderson Architects 07 5528 0088 hhh.com.au	Johnson Pilton Walker Pty Ltd 02 9259 5900 jpww.com.au	Multitech Solutions Pty Ltd 07 3394 0117 mts.net.au
Erbas & Associates Pty Ltd 0412 300 992 erbas.com.au	Harry Poulos Architects 07 3255 2828 poulos.com.au	Kann Finch Group Pty Ltd 02 9299 4111 kannfinch.com.au	Murchie Consulting Pty Ltd 03 9620 1555 murchie.com.au
Fender Katsalidis Aust Pty Ltd 03 8696 3888 fkaustralia.com	Hassell Ltd 03 8102 3000 hassell.com.au	Kemp Strang Kennedy Strang Legal Group 02 9225 2585 kempstrang.com.au	Napier & Blakeley Pty Ltd 02 9299 1899 napierblakeley.com
fitzpatrick+partners 02 8274 8200 fitzpatrickpartners.com	Hayball 03 9699 3644 hayball.com.au	Knox Advanced Engineering Pty Ltd 02 9929 1222 knoxadv.com.au	National Standards Pty Ltd 02 9886 0222 NationalStandards.com.au
FJMT Francis Jones Morehen Thorp Architects 02 9251 7077 fjmt.com.au	HBO+EMTB 02 8226 2000 hboemt.com	Lab Architecture 03 9612 1026 labarchitecture.com	NBR&S Partners Pty Ltd 02 9922 2344 nbrs.com.au
Floorcovering Technologies Group 1300 668 456 ftg.com.au	Health Projects International Pty Ltd 02 9460 4199 hpi.net.au	Lahz Nimmo Architects 02 9550 5200 lahznimmo.com	NettZero Pty Ltd 07 3123 4930 nettzero.com.au
Floth Pty Ltd 02 9419 4100 floth.com.au	Herbert Geer 02 9239 4500 herbertgeer.com.au	Leffler Simes Architects 02 9909 3344 lefflersimes.com.au	Norman Disney & Young 02 9928 6875 ndy.com
FM2 Pty Ltd 0407 207 823 fm2.com.au	Herron Todd White 02 9221 8911 htww.com.au	Libby Staggs Environmental Consultancy 0448 026 508	Northrop Engineers Pty Ltd 02 6285 1822 northrop.com.au
FMSA Architects 03 9329 6555 fmsa.com.au	Hodge + Collard Architects 08 9322 5144 hodgecollard.com	Lucid Consulting Engineers 08 8364 6155 lucidconsulting.com.au	NS Projects 08 6363 0805 nsp.com.au
Focus Digital Pty Ltd 0417 883 880 focusdigital.com.au	Holding Redlich 03 9321 9863 holdingredlich.com.au	Mainway Project Management 02 9517 9877 mainway.com.au	Octavius Consulting Group Pty Ltd 02 9383 4115 octavius.com.au
Fulton Trotter Architects 07 3291 1511 fultontrotter.com.au	Hyder Consulting Pty Ltd 02 8907 9009 hyderconsulting.com	Mallesons Stephen Jaques 02 6217 6000 mallesons.com	ODCM 02 9213 4700 odcm.com.au
G E Shaw & Associates ACT Pty Ltd 02 6248 9995 geshaw.com.au	i2c Design and Management 02 8584 6200 i2c.com.au	Marshall Day Acoustics Pty Ltd 03 9416 1855 marshallday.com	Oldfield Knott Architects Pty Ltd 08 9381 6788 oldfieldknott.com.au
Gallagher Jeffs Pty Ltd 03 8610 3888 gallagherjeffs.com.au	i4architecture 07 4724 1944 i4architecture.com.au	MC2 Energy Consultants 03 9429 9471 mc2architects.com.au/energy.HTM	Optima Commercial 02 9894 2240 optimacommercial.com.au
Gaskin Construction Services Pty Ltd 07 3229 9954 gaskin.com.au	IA Group Pty Ltd 02 6295 6311 iagroup.com.au	McCabe Architects 03 9415 6377 mccabearchitects.com.au	Opus International Consultants Australia Pty Ltd 07 3007 8181 opus.com.au
GHD Pty Ltd 02 9239 7100 ghd.com/australia	IBMS Pty Ltd 08 9247 7000 ibms.com.au	McConnel Smith & Johnson 02 8353 8888 msjgroup.com.au	Organica Engineering Pty Ltd 03 9005 5971 organicaeng.com.au
Gomango Architects 07 5491 7687 gomangoarchitects.com.au	Impact Project Management Pty Ltd 1300 630 063 impactgroup.com.au	MCD Australia 07 3414 6000 mcdaust.com.au	Pacific Consulting Engineers 07 5591 8850 pacific.bigblog.com.au
Gray Puksand 03 9221 0999 graypuksand.com.au	Inhabit Group 02 9252 8023 inhabitgroup.com	MDA Consulting Engineers 07 5592 0222 mdaengineers.com.au	Paragon Project Management Pty Ltd 02 9247 7999 paragonpm.com.au
Great Forest Australia 03 9682 0200 greatforest.com.au	Interiors Intoto Pty Ltd 02 9969 5830 interiorsintoto.com.au	Medland Metropolis Pty Ltd 02 9552 2022 medland.com.au	Parsons Brinckerhoff Australia Pty Ltd 08 8405 4426 pbworld.com
Green Plus Property Services 02 9922 1777	Ionique Pty Limited 0411 562 888 ionique.net.au	Meinhardt Australia Pty Ltd 03 8676 1200 meinhardtgroup.com	Paterson Group Architects 08 9485 2122 patersongroup.com.au
greenenergyrealestate.com.au 07 5476 6065 greenenergyrealestate.com.au	Irwinconsult 03 9622 9727 irwinconsult.com.au	METIER3 Architects Pty Ltd 03 9420 4000 metier3.com.au	Pavan Consultants 03 9471 2999 pavanconsultants.com.au
Grieve Gillett Pty Ltd 08 8232 3626 grievemillett.com.au	ITC Group Pty Ltd 02 9495 8100 itcgroup.net.au	MGF Consultants NQ Pty Ltd 074 030 1000 mgfnq.com	PDT Architects 07 3232 1300 pdt.com.au

PROFESSIONAL SERVICES

Phoenix Engineering Pty Ltd 1300 446 511 phoenixengineering.net.au	S2F Pty Ltd 03 8456 4841 s2f.com.au	Sustainable Design Review 08 9472 0683	Valmont Interiors Pty Ltd 02 9698 8605 valmont.com.au
PIDCOCK Architecture + Sustainability 02 9357 1366 pidcock.com.au	Sanders Turner Ellick Architects Pty Ltd 07 4957 7341 stea.com.au	Sustainable Development Consultants Pty Ltd 03 9882 9967 sdconsultants.com.au	Value Added Engineering 07 3161 9632 vae.net.au
Pitt & Sherry 03 6210 1420 pittsh.com.au	Sandover Pinder Pty Ltd 08 9225 0600 sanpin.com.au	Sustainable Habitation 03 9527 2106 sustainablehabitation.com.au	Village Well 03 9650 0080 villagewell.org
Playoust Churcher Architects 02 9498 8811 playoustchurcher.com.au	Savills Aust Pty Ltd 03 8686 8032 savills.com.au	Synergy Green 0404 025 747 synergygreen.com.au	Vim Sustainability PL 02 8338 9655 vim.net.au
Plus Architecture 03 8696 3999 plusarchitecture.com.au	SEE Sustainability Consulting 02 4950 5903 seesustainability.com.au	T&Z Architects 08 9481 0685 tz.com.au	Viridis E3 Pty Ltd 02 6285 2388 ve3.com.au
PMDL Architecture & Design 02 9959 5088 pmdl.com.au	Sheldon Commercial Interiors 02 9906 6666 sheldon.com.au	Team Catalyst Pty Ltd 0417 405 478 teamcatalyst.com.au	W. Simons & Sons Aust PL T/as Simons Green Energy Solutions 02 8338 8660 simonsgreenenergy.com.au
Point Project Management Pty Ltd 02 6175 3664 pointpm.com.au	Simpson Kotzman Pty Ltd 03 9663 3030 sk.com.au	THCS ACT Pty Ltd 02 6285 2599 thcs.com.au	Walter Brooke & Associates Pty Ltd 08 8272 4166 walterbrooke.com.au
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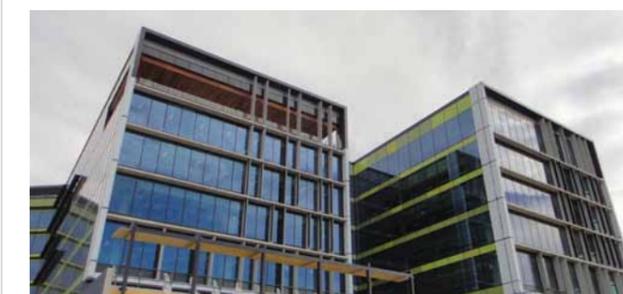
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