

Director
Select Committee on Social, Public and Affordable Housing
Parliament House
Macquarie Street
SYDNEY NSW 2000

28 February 2014

Method of submission: online via inquiry website

Dear Sir/Madam,

RE: INQUIRY INTO SOCIAL, PUBLIC AND AFFORDABLE HOUSING

Thank you for the opportunity to provide a submission to the 'Inquiry into social, public and affordable housing'. The Green Building Council of Australia (GBCA) supports the Select Committee's inquiry into current housing supply and would like to see this inquiry result in better outcomes for social and public housing tenants as well as low income earners that ensure that there is a supply of dwellings that are affordable, efficient, healthy and sustainable within New South Wales (NSW).

About the GBCA

The GBCA is Australia's authority on green buildings and communities, established in 2002 to develop a sustainable property industry in Australia and drive the adoption of green building practices. The GBCA promotes green building programs, technologies, design practices and processes, and operates Australia's only national voluntary comprehensive sustainability rating system for buildings and communities – Green Star.

The GBCA has more than 750 member organisations, including government departments, which work together to support the Council and its activities. The GBCA is also a founding member of the World Green Building Council (WorldGBC), which was established to provide a federated 'union' of national green building councils with a common goal to support the sustainable transformation of the global property industry; there are now 100 such councils worldwide.

Green Star rating tools

Green Star is a national, voluntary tool that encourages, recognises and rewards best practice and innovation. The first Green Star rating tool was released in 2003 in response to market demand for a rating tool that would evaluate the environmental design and construction of buildings as well as establishing a common language for green buildings.

There are currently 10 Green Star rating tools which address a range of building types and over 660 projects have achieved Green Star certification across Australia, with a further 490 projects registered. The Green Star rating system is designed to take an holistic approach within each class and building sector, addressing nine categories in total: Management, Indoor Environment Quality (IEQ), Energy, Water, Materials, Land Use and Ecology, Emissions, Innovation and Transport.

World-leading Green Star-certified projects (6 Star Green Star) within NSW include:

- 1 Bligh Street, Sydney (DEXUS Property)
- 1 Shelley Street, Sydney (Macquarie Bank)
- 39 Hunter Street, Sydney (Kador Group)
- 100 Market Street, Sydney (Westfield)
- 5 Murray Rose, Sydney Olympic Park (GPT)
- Academic Accommodation 3, Thurgooda (Charles Sturt University)
- Ausgrid Learning Centre, Silverwater (Ausgrid)
- Darling Quarter, Sydney (Lend Lease)
- Workplace 6, Darling Harbour (Sydney Harbour Foreshore Authority)
- 161 Castlereagh Street (GPT).

Housing affordability

The Demographia International Housing Affordability Survey: 2014 found Australia's housing markets to be among the most unaffordable in the world. The latest survey found Australia, once a shining example of modestly-priced, high-quality housing, now has twenty-five housing markets that are considered to be 'severely unaffordable'.

Of the 360 markets assessed, Sydney was ranked as the sixth most unaffordable market in the world. While the survey considers housing to be affordable when the price-to-income ratio is 3.0, the median house price in Sydney is 9.0 times greater than the median gross annual income. It is therefore cheaper to buy a home in New York City (which doesn't even rate in the top 20) or London (which comes in at 21) than it is in Port Macquarie.

However, affordability is not just about the upfront cost of buying a home, but must consider the long term ongoing operational costs including projections of rising cost of living and utilities. While the cost of operating our home over its lifetime should be an integral part of the affordability equation, we rarely consider lighting, heating, cooling or energy use when we're doing the sums on our mortgage repayments or considering financial models for community housing.

Australians currently build some of the largest new homes in the world –at the same time, average household size is decreasing. The Australian Bureau of Statistics predicts that household size will fall to between 2.2 and 2.3 people per household by 2026. While our houses expand and the number of occupants shrink, the amount we spend on running our homes continues to balloon.

The Australian Bureau of Statistics predicts that, by 2020, energy consumption in Australia's residential sector will rise by 12 per cent on 2011 levels, and by 39 per cent above 1990 levels. This will mean significant increases in household energy bills – and that's before a carbon price and other energy cost increases due to factors such as reinvestment in infrastructure are considered.

However, utility costs are just part of the story. When both housing and transport costs are considered, where you live consumes a third of the average household budget. Transport is the second-largest cost to households, and rising petrol prices are felt most acutely in the outer suburbs of cities where car dependency is highest. While this has a significant effect on the affordability of our homes, we rarely factor in the hidden price paid – loss of leisure time, time with families or even just time asleep - while sitting in traffic for hours each day. Today's traffic gridlock is only going to get worse, with the Australian Sustainable Built Environment Council (ASBEC) finding that travel times will increase by 25 per cent within the next thirty years.

Strong leadership is essential if we are to tackle challenges such as social, public and affordable supply, population growth and climate change. The role of government is to provide visionary government leadership, in particular by setting contemporary benchmarks and rigorous standards. Government has a responsibility to embed sustainability principles in its policies and has a significant opportunity to encourage industry and the broader community to adopt more sustainable practices through implementing a range of incentives. A combination of solutions will be required to make the NSW housing sector more competitive, affordable and sustainable.

It is therefore timely that the NSW Government is consulting with industry and the wider community about the future of social, public and affordable housing. We must change the paradigm so that people understand housing affordability as part of a package. As a starting point, the long-term costs associated with our homes must be better understood and articulated. The data is clear: GBCA's 2013 *Value of Green Star* report (attached at end of this submission) found that compared to the average Australian building, Green Star-certified buildings produce 62 per cent fewer greenhouse gas emissions and use 66 per cent less electricity.

We encourage the Select Committee to refer to the following information provided regarding the Green Star – Multi Unit Residential and Green Star – Communities rating tools, and consider how their use can help create fairer, more affordable and holistically sustainable public, social and affordable housing markets.

The Green Star – Multi Unit Residential v1 rating tool

The Green Star – Multi Unit Residential rating tool applies directly to residential buildings (developments of two units or more – please note that the GBCA does not rate single dwellings). Green Star – Multi Unit Residential v1 was released in July 2009 to promote the design and construction of high-performance residential developments. The GBCA worked closely with industry and government to develop the benchmarks that underpin the Green Star – Multi Unit Residential rating tool. Sponsors of the tool include The Laminex Group, Brisbane City Council, City of Sydney, the South Australian Government and Mirvac. Please find a copy of the Green Star – Multi Unit Residential factsheet attached.

More efficient, productive and sustainable housing can also contribute to greater affordability. We have two strong examples of how the Green Star – Multi-Unit Residential v1 rating tool has been used in social housing projects (in Lilyfield and Redfern in NSW) with successful outcomes, both delivered through Housing NSW on cost-neutral budgets. The Lilyfield Housing Redevelopment project in Sydney achieved a 5 Star Green Star rating in 2009. Housing NSW invested in environmentally sustainable initiatives such as gas-boosted solar hot water systems, 267 square meters of solar panels and a 4 kilowatt photovoltaic system to power common area lighting. The gas-boosted hot water system caters for 60 per cent of hot water consumption and delivers annual savings of \$19,000 - or \$213 per unit - meaning the annual energy bill for households will decrease by 25 per cent. Similar outcomes have been achieved for the Redfern project. Please find attached case studies for the Lilyfield Housing Redevelopment and the Redfern Housing Development.

There have been a number of projects in NSW that have achieved Green Star certification using the Multi Unit Residential v1 rating tool. These projects include Lend Lease's 4 Star Green Star rated Jacksons Landing, the 4 Star Green Star rated 'The Quay' project in Haymarket and Fraser's Central Park which has currently achieved four, 5 Star Green Star ratings for their residential towers. Further information about these projects can be found on the Green Star Project Directory available via the GBCA website at www.gbca.org.au.

Good, integrated design has resulted in healthy, attractive homes with lower operating costs for residents and building owners/managers alike. The Green Star – Multi Unit Residential v1 rating tool includes a mix of requirements that ensures a balance is struck between housing affordability, material sustainability, tenant suitability (including adaptability and universal design) as well as lower operating costs of assets.

Green Star – Communities

In 2009, the GBCA commenced work, in consultation with industry and all levels of government, including UrbanGrowth NSW (formerly Landcom) and the City of Sydney, on the development of a rating tool for sustainable development projects on a community scale, examining issues of economic, social and environmental importance. The first step in developing the Green Star – Communities rating tool was to develop a national framework consisting of five best practice principles which are to:

- Enhance liveability
- Create opportunities for economic prosperity
- Foster environmental responsibility
- Embrace design excellence
- Demonstrate visionary leadership and strong governance.

Stage 2 of the project involved establishing best practice benchmarks and metrics for assessing and certifying sustainable communities. A set of 38 credits was then developed and tested on a number of projects across Australia. The Green Star – Communities PILOT rating tool was launched in June 2012 and there are now 15 projects, including three in NSW, registered for certification. A copy of the Green Star – Communities framework is attached at the end of this submission.

We encourage the Select Committee to consider how Green Star – Communities could assist in the planning processes across NSW by providing a framework in which to deliver higher quality and more affordable housing options. For example, the rating tool will drive on-the-ground action by rewarding community-level projects which have a percentage of affordable homes. We have provided a few specific examples of how the Green Star – Communities PILOT rating tool and framework can add value to an integrated, holistic policy on the future of affordable housing in NSW.

Selecting and prioritising areas for affordable housing

The Green Star – Communities PILOT rating tool encourages an integrated approach to providing housing that also takes into account a range of issues such as access to amenities, access to education and employment opportunities and energy efficiency. Housing affordability strategies available under the *Econ-5 Affordability* credit include:

- Providing a diversity of lot sizes to support housing diversity, and a mix of densities with increased density near activity centres;
- Providing a proportion of housing lots and dwellings to the market at an affordable price for low to moderate income households;
- Provision of key worker housing;
- Provision of a program for guaranteeing the supply of shared equity and/or social housing within the development; and
- Establishing partnerships between organisations to ensure allocation and delivery of affordable housing stock.

Service integration to support livelihoods and wellbeing

The Green Star – Communities PILOT rating tool recognises that affordability encompasses a range of factors. As such, it rewards projects that integrate mass transit options - so that people aren't stuck in their cars for hours each day. It rewards connections to employment and education facilities - so that people may work and learn locally. And it rewards access to local amenities – so that people have a vibrant, liveable and ultimately affordable community at their doorsteps.

For example, the *Econ-3 Return on Investment* credit encourages a holistic cost-benefit analysis that addresses indirect and intangible costs and benefits to the developer and community to ensure long term productivity, health and social and environmental issues are captured as well as core costs and benefits.

Providing appropriate housing and overcoming social disadvantage

The Green Star – Communities PILOT rating tool includes credits such as *Liv-3 Healthy and Active Living*, *Liv-5 Safe Places* and *Liv-7 Accessibility and Adaptability* which provide a range of benchmarks for equitable access. GBCA recognises that there are many factors that need to be considered if equitable access to a great lifestyle can be achieved for everyone in our community. The Green Star – Communities rating tool can further support this aim through a number of the credits previously outlined which focus on affordability and improving access to transport as well as economic and education opportunities.

Improving the quality and supply of social and public housing

There are not-for-profit organisations, such as St George Community Housing and Mission Australia that provide secure and affordable housing options for lower-income earners or disadvantaged tenants. Both these organisations, who are and have been member of the GBCA respectively, are required to deliver affordable and social housing that is suitable to their tenant demographic, is environmentally and socially sustainable in order to minimise operational and maintenance costs over time, and perhaps most importantly, must be delivered in a commercially viable, financially sustainable manner.

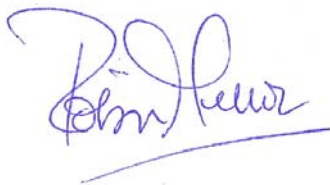
Mission Australia Housing has been involved in the delivery of the Camperdown project in NSW which is based on the successful 'Common Ground' model from New York, providing permanent homes and on-site support services to help people achieve health and stability. This development is an example of a project that has employed the Community Housing Provider (CHP) development agreement model, relying on collaboration between NSW Department of Family & Community Services (Housing NSW) and the Federal Department of Families, Housing, Community Services and Indigenous Affairs, alongside private developer Grocon. This project has achieved a 4 Star Green Star rating using the GBCA's Green Star – Multi Unit Residential v1 rating tool.

This is simply one example out of 53 projects that demonstrate the private sector is well equipped to deliver high-quality, affordable and sustainable residential apartments. Support from the NSW Government to aid and incentivise the delivery of more affordable and sustainable social, public and low-income apartment buildings would be most welcome and encouraged by the GBCA.

It is important that government and industry work together on building more sustainable buildings, communities and cities. We encourage you to look upon the GBCA as the primary sustainable building resource and we would welcome the opportunity to brief you on the work we are doing in relation to Green Star – Multi Unit Residential developments and affordable communities.

The GBCA appreciate the opportunity to provide comment on this issue and would be happy to provide further information to assist with the committee's inquiry, if required.

Yours sincerely,



Robin Mellon
Chief Operating Officer
robin.mellon@gbca.org.au



The Value of Green Star:

A Decade of Environmental Benefits
Research Key Findings

May 2013





Executive Summary

Since the launch of the Green Star rating system in 2003, hundreds of buildings around the country have been independently certified for their sustainable design and construction using Green Star rating tools.

While much evidence of the positive effect of Green Star at the individual building level has been collected over the past ten years, until now, no comprehensive quantitative research has ever been conducted into the overall impact of Green Star on Australia's built environment.

In late 2012, the Green Building Council of Australia (GBCA) conducted a study of data from Green Star-certified buildings in order to quantify the overall impact of the rating system on greenhouse gas emissions, operational energy usage, operational water consumption and construction and demolition waste.

The study compared data from 428 certified project submissions with standard or minimum practice benchmarks. The methodology and findings have been peer-reviewed for accuracy by independent consulting firm Net Balance.

A summary of the key findings of the study are provided overleaf. The research is ongoing, with aggregated results to be published annually.

For more information on research methodology and to download the full Green Star: A Decade of Environmental Benefits research report, please visit: www.gbca.org.au and go to the Resources section.



Brookfield Place - 5 Star Green Star - Office Design v2

Key Findings

- ◆ On average, Green Star-certified buildings produce **62% fewer greenhouse gas emissions** than average Australian buildings.
- ◆ On average, Green Star-certified buildings produce **45% fewer greenhouse gas emissions** than if they had been built to meet minimum industry requirements.
- ◆ On average, Green Star-certified buildings use **66% less electricity** than average Australian buildings.
- ◆ On average, Green Star-certified buildings use **50% less electricity** than if they had been built to meet minimum industry requirements.
- ◆ On average, Green Star-certified buildings use **51% less potable water** than if they had been built to meet minimum industry requirements.
- ◆ The cumulative savings in greenhouse gas emissions from Green Star-certified buildings equates to **172,000 cars removed from our roads**, when compared to average Australian buildings – that is 625,000 tonnes CO₂ per annum.
- ◆ Green Star-certified buildings save enough potable water to fill **1,320 Olympic swimming pools every year** – that is, over 3,300,000 kL per annum.
- ◆ On average, Green Star As Built-certified buildings **recycled 96% of their construction and demolition waste**.
- ◆ Since Green Star's introduction to the market in 2003, more than **5.5 million square metres of building area have been Green Star-certified**.
- ◆ Green Star-certified buildings **save the equivalent of 76,000 average households' electricity use annually**.
- ◆ **37,600 truckloads of construction and demolition waste has been diverted from landfill** due to good waste management practices when constructing Green Star-certified buildings.
- ◆ **The higher the Green Star-certified rating of a building (4, 5 or 6 star) the greater the environmental savings** across all key areas – greenhouse gas emissions, energy use, water consumption, and construction and demolition waste.



Building a sustainable future



Developed by the
Green Building Council of Australia



GREEN STAR - MULTI UNIT RESIDENTIAL V1 ♦

FACT SHEET & BUSINESS CASE

green building council australia

greenstar

Multi Unit Residential v1

THE GREEN BUILDING COUNCIL OF AUSTRALIA (GBCA) LAUNCHED THE GREEN STAR – MULTI UNIT RESIDENTIAL V1 RATING TOOL IN JULY 2009 TO PROMOTE THE DESIGN AND CONSTRUCTION OF HIGH-PERFORMANCE GREEN RESIDENTIAL DEVELOPMENTS.

The Green Star – Multi Unit Residential v1 rating tool enables building owners and developers to:

- minimise the environmental impacts of their developments
- reduce Australia's greenhouse gas emissions
- receive recognition for more environmentally sustainable design
- deliver health benefits and financial savings for building occupants.

ABOUT GREEN STAR

The GBCA launched the Green Star environmental rating system for buildings in 2003. Green Star evaluates the green attributes of building projects based on nine categories, including energy and water efficiency, indoor environment quality and materials.

Green Star is a holistic rating tool, evaluating not only environmental attributes, but also features that affect occupant health and wellbeing, such as indoor environment quality and access to transport. Green Star rating tools can be used to rate the environmental attributes of a building at the design phase as well as at the end of construction (known as 'As-Built').

IMAGE:

Converso 8 Waterside Place
4 star Green Star - Multi Unit Residential v1

WHY BUILD A GREEN MULTI UNIT RESIDENTIAL FACILITY? ♦



ENVIRONMENTAL BENEFITS

High rise apartments in Australia are energy and water guzzlers. A NSW Energy Australia study found high rise apartment use 30 per cent more power than a typical detached house. Much of this is in the common areas such as foyers and car parks where lights are often inefficient and are left on night and day.

In the residential sector, emissions reductions can be achieved through energy efficient lighting and appliances, refrigeration, heating and cooling and through greater use of natural light. Green Star-rated buildings do just that.

\$26,000 SAVING EACH YEAR IN ENERGY CONSUMPTION

The Redfern Housing Redevelopment in Sydney was awarded a 5 Star - Green Star rating under the Multi Unit Residential PILOT in 2009. Green initiatives include rainwater collection and greywater treatment, solar hot water systems, solar photovoltaic cells for lighting and passive ventilation.

The project's design aims to reduce energy consumption by 74 per cent when compared with standard residential buildings of similar size. This reduction in CO2 emissions is equivalent to taking 100 cars off the road. What's more, the energy efficiency measures are predicted to save around \$26,000 across the entire building in energy consumption each year alone.

Water efficient fittings and fixtures, as well as 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. The predicted saving of 4,700 cubic metres of water a year is equivalent to around 2 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.

LOWER OPERATING COSTS

Green buildings are built for high energy and water efficiency, so they are cheaper to operate. International research has confirmed that green buildings:

- consume 26 per cent less energy than the average building
- generate 33 per cent less greenhouse gas emissions.

Green buildings can provide residents with a buffer against future increases in water and energy services costs and protect against services shortages. High efficiency appliances, increased insulation, reduced lighting loads, passive solar heating and ventilation, and water conservation measures all lead to more dollars in the bank.

ELECTRICITY BILLS DOWN BY 25%

The Lilyfield Housing Redevelopment in Sydney achieved a 5 Star Green Star rating in 2009. Housing NSW invested in environmentally sustainable initiatives such as gas-boosted solar hot water systems, 267 square metres of solar panels and a 4 kilowatt photovoltaic system to power common area lighting. The gas-boosted hot water system caters for 60 per cent of hot water consumption and delivers annual savings of \$19,000 - or \$213 per unit - meaning the annual electricity bill for households will decrease by 25 per cent.

IMAGE:

Lilyfield Housing Redevelopment
5 star Green Star - Multi Unit
Residential v1

65% REDUCTION IN HEATING AND COOLING

With its 4 Star Green Star – Multi Unit Residential rating, Convesso 8 Waterside Place in Melbourne will deliver a 65 per cent reduction in business-as-usual heating and cooling energy through a high performance double glazing system and insulation to all walls and ceilings. A master electricity switch has been built into the entry of each apartment – enabling residents to reduce their standby power - which accounts for 10 per cent of all household electricity consumption in Australia – with the flick of a switch.

The apartment complex also features a number of measures to ensure maximum water efficiency and reuse throughout the building, including water efficient dishwashers, washing machines, tap ware and shower heads. These features are expected to reduce potable water consumption by a quarter compared to standard practice. The result will be reduced energy and water bills for residents, and improved environmental outcomes at the same time.

A HEALTHIER, HAPPIER PLACE TO LIVE

According to the OECD's Environmentally Sustainable Buildings report (2003), illness from indoor air pollution has become one of our most acute building challenges – with building materials, ranging from paints to carpets, leading to occupational health issues.

Green buildings have better ventilation and indoor environment quality, which improves people's health and sense of well-being. Green buildings also provide more access to daylight, improving people's mental health and performance. For example, a Canadian study found that people suffering from depression recovered 15 per cent faster in sunny rooms, when compared with those in dark rooms. An American study of more than 21,000 students found students in a daylight room achieved a 20 per cent faster progression in maths and 26 per cent progression in reading.

GREEN SPACES FOSTER COMMUNITY

The Lilyfield Housing Redevelopment not only incorporates environmentally sustainable design features to improve the building's energy and water efficiency, but also includes green initiatives to foster community and healthy living among residents. The building design features a large central courtyard, providing tenants with a secure and private open space. The communal garden facilities have been designed to enhance the residents' sense of community, as well as provide them with the opportunity to grow their own fresh vegetables and reduce the carbon mileage accumulated through the mass transportation of produce.

EMPOWERING THE LOCAL COMMUNITY

The Redfern Housing Redevelopment project recognised the important links that Australia's indigenous people have with the suburb, and so mandated a minimum of 20 indigenous construction workers. This was a 'first' for a public housing project in Australia, and was rewarded with a Green Star Innovation point (INN-1). 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.

IMAGE:

The Summer

4 star Green Star - Multi Unit Residential v1



ATTRACTIVE TO TENANTS AND INVESTORS

Green buildings are easier to market in an environment where people want to be a part of the solution to climate change. Green buildings show higher returns on assets and increased property values. The McGraw Hill Construction Report (2007) found that green building can increase building values by 7.5 percent and improve return on investment by 6.6 per cent. By going green, owners can also increase occupancy ratios by 3.5 per cent.

SUSTAINABLE LIVING ATTRACTS BUYERS

The first Green Star residential certification was awarded in May 2009 to 'The Summer' in Western Australia, for its 4 Star Green Star development. The Summer incorporates an extensive range of environmental design techniques such as dual aspect to allow natural ventilation, solar shading, energy efficient appliances and rainwater storage. The developer of the project was overwhelmed by the demand for the sustainable apartments. "We had no idea just how significant sustainable living is to the lives of many people and we are definitely looking to increase the bar on all our future projects," Match Managing Director Lloyd Clark said.

SMART FINANCIAL INVESTMENT

The 4 Star Green Star Convesso 8 Waterside Place also delivers dividends for the developer. Vivas Lend Lease's Executive Director, Hugh Martin, says: "It is clear that sustainable buildings like Convesso make business sense. They represent smart financial investments today and environmentally responsible investments in our future."

ENVIRONMENTAL BENEFITS:

- Protect ecosystems and biodiversity
- Improve air and water quality
- Reduce waste
- Conserve natural resources
- Reduce greenhouse gas emissions

ECONOMIC BENEFITS

- Reduce operating costs
- Save 20-30 per cent on energy and water costs
- Enhance asset value and profits
- Optimise life-cycle economic performance
- Increase access to government incentives
- Enhance investor opportunities

HEALTH AND COMMUNITY BENEFITS

- Improve air, thermal and acoustic environments
- Enhance occupant comfort and health
- Eliminate harmful chemicals such as volatile organic compounds and carbon dioxide
- Minimise strain on local infrastructure by providing access to transport
- Contribute to overall quality of life

KEY ATTRIBUTES ✦

THE GREEN STAR - MULTI UNIT RESIDENTIAL V1 RATING TOOL IS APPLICABLE TO NEW MULTI UNIT RESIDENTIAL FACILITIES, AND EXTENSIONS TO AND MAJOR REFURBISHMENTS OF EXISTING MULTI UNIT RESIDENTIAL FACILITIES OF TWO UNITS OR MORE, PROVIDED THEY MEET GREEN STAR ELIGIBILITY CRITERIA.

The rating tool has undergone a rigorous assessment period after a pilot phase, and refinements to the calculators and credits have already received positive feedback from industry.

The Green Star – Multi Unit Residential v1 rating tool has many credits in common with the other Green Star rating tools but also includes a number of credits specific to the multi unit residential sector. These sector specific credits include metering, natural ventilation, trip reduction, energy and water efficient appliances, swimming pool and spa water efficiency, and communal outdoor facilities.

The Green Star – Multi Unit Residential v1 rating tool also includes a customised energy calculator. While the Green Star – Office suite of rating tools incorporates energy modelling consistent with the National Australian Built Environment System (NABERS) Energy tool, an equivalent modelling protocol did not exist for the multi unit residential sector.

The Multi Unit Residential v1 rating tool will address residential buildings containing two or more dwellings with over 80 per cent of floor area for residential uses.

The result is a single third party certification that the residential market can understand and trust, and that property developers can use to demonstrate their development's green credentials.

CERTIFICATION ♦

Green Star ratings will be awarded as outlined below:

The rating tools have been developed to be equitable across building sectors. This means a 5 Star Green Star – Multi Unit Residential v1 project will demonstrate a similar level of industry leadership as 5 Star Green Star – Office v3 project.

Projects with ratings of 1, 2 or 3 Stars cannot receive certification, as these ratings represent minimum, average and good practice, whereas Green Star aims to recognise and reward best practice and above.

THESE RATING TOOLS HAVE BEEN DEVELOPED TO BE EQUITABLE ACROSS BUILDING SECTORS.



4 Star Green Star Certified Rating

Weighted score of 45-59
Signifies 'Best Practice'



5 Star Green Star Certified Rating

Weighted score of 60-74
Signifies 'Australian Excellence'



6 Star Green Star Certified Rating

Weighted score of 75-100
Signifies 'World Leadership'

CATEGORIES AND CREDITS IN GREEN STAR ♦

GREEN STAR - MULTI UNIT RESIDENTIAL V1



MANAGEMENT

- Green Star Accredited Professional
- Commissioning
- Building Tuning
- Independent Commissioning Agent
- Building Users' Guides
- Environmental Management
- Waste Management
- Metering



INDOOR ENVIRONMENT QUALITY

- Dwelling Ventilation
- Natural Ventilation
- Daylight
- Thermal Comfort
- Hazardous Materials
- Internal Noise Levels
- Volatile Organic Compounds
- Formaldehyde Minimisation
- Electric Lighting Levels
- Private External Space

ENERGY

- Conditional Requirement
- Greenhouse Gas Emissions
- Peak Energy Demand Reduction
- Unoccupied Areas
- Energy Efficient Appliances



TRANSPORT

- Provision of Car Parking
- Fuel-Efficient Transport
- Cyclist Facilities
- Commuting Mass Transport
- Trip Reduction Mixed-Use



WATER

- Occupant Amenity Water
- Water Meters
- Landscape Irrigation
- Heat Rejection Water
- Fire System Water
- Water Efficient Appliances
- Swimming Pool/Spa Water Efficiency



MATERIALS

- Recycling Waste Storage
- Building Re-use
- Recycled Content and Re-used Products & Materials
- Concrete
- Steel
- PVC Minimisation
- Sustainable Timber
- Design for Disassembly
- Dematerialisation
- Flooring
- Joinery
- Internal Walls
- Universal Design



LAND USE & ECOLOGY

- Conditional Requirement
- Topsoil
- Reuse of Land
- Reclaimed Contaminated Land
- Change of Ecological Value
- Communal Garden Facilities



EMISSIONS

- Refrigerant ODP
- Refrigerant GWP
- Refrigerant Leaks
- Insulant ODP
- Watercourse Pollution
- Discharge to Sewer
- Light Pollution
- Legionella



INNOVATION

- Innovative Strategies and Technologies
- Exceeding Green Star Benchmarks
- Exceeding Green Star Scope



CATEGORY WEIGHTINGS ♦

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Management	8%	8%	8%	8%	8%	8%	8%	8%
IEQ	20%	20%	20%	20%	20%	20%	20%	20%
Energy	25%	25%	25%	25%	25%	20%	25%	25%
Transport	10%	10%	10%	10%	10%	10%	10%	10%
Water	15%	15%	13%	13%	18%	18%	18%	15%
Materials	10%	10%	10%	10%	10%	10%	10%	10%
Land Use & Ecology	7%	7%	9%	9%	4%	9%	4%	7%
Emissions	5%	5%	5%	5%	5%	5%	5%	5%

The Innovation Category is not subject to an environmental weighting factor as the innovation could fall under any number of Green Star categories. More information and additional guidance on the weightings for the Green Star – Multi Unit Residential v1 rating tool can be found on the GBCA website.

NEXT STEPS ♦

- Download the Green Star – Multi Unit Residential v1 rating tool. This is freely available for self-assessment and can be downloaded from the GBCA website: www.gbca.org.au
- Join the GBCA. Demonstrate your company's commitment to sustainability, actively influence the future direction of green building and gain access to green building education, training and resources, as well as significant member discounts on certification. Find out more at: www.gbca.org.au/membership/
- Register your project with the GBCA for an independent third party accredited assessment. This process costs varies depending on the size of your project and whether or not you are a GBCA member. Find out more about the certification process and how to register: www.gbca.org.au/green-star/certification/
- Purchase additional technical manuals. As part of your certification fee you will receive 2 free Green Star - Industrial v1 Technical Manuals. You may like additional manuals for your team, which can be purchased from our online store: www.gbca.org.au/shop/
- Attend a workshop. The GBCA holds regular workshops on the Green Star rating tools. As part of your certification fee you may receive one free In- House Certification Workshop. Please contact your Case Manager to see if you are eligible. There are also introductory and advanced classes on Green Star; register online: www.gbca.org.au/courses.asp
- Train your entire project team on the tool. The GBCA can organise in-house training so that all your project team and sub-contractors are aware of the implications of developing a Green Star project. To obtain an in-house quote please email education@gbca.org.au

SPONSORS

Platinum

Brisbane City Council
The Laminex Group
City of Sydney

Gold

Department of Transport, Energy &
Infrastructure, South Australia
Stockland
Land Development Agency, Australian
Capital Territory
Mirvac

Silver

Stairlock International

CONTACT

Green Building Council of Australia

Phone: (02) 8239 6200

Email: info@gbca.org.au

www.gbca.org.au

**For help on how to market your Green
Star project:** marketing@gbca.org.au

**For information on membership of the
GBCA:** membership@gbca.org.au

To register your Green Star project:
greenstar@gbca.org.au



BUSINESS CASE REDFERN HOUSING REDEVELOPMENT PROJECT

IMAGE:

Redfern Housing
5 star Green Star - Multi Unit
Residential v1

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

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 said "The 5 Star Green Star rating for the Redfern housing redevelopment demonstrates leadership in innovation and design and underscores the State Government's commitment to leading the way in best environmental practice."

WHERE COMMUNITY BELONGS

The project involves 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 will be comprised of 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 promotes 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.

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 for the future, 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 (INN-1).

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

Innovation

- Exceeding the benchmarks of TRA-1 by providing significantly less car parking than the minimum – 6 dedicated disabled parking spaces are provided on the site
- There is no general parking but generous bicycle storage is provided

Land Use and Ecology

- Remediation of a contaminated site
- Use of native landscaping.



REDFERN HOUSING REDEVELOPMENT PROJECT - EAST SITE

IMAGE

Redfern Housing Redevelopment
Project - East Site
5 Star Green Star - Multi Unit Residential PILOT

green building council australia



**Multi Unit Residential
PILOT 2009**

PROJECT DATA

Applicant

Housing NSW

Location

57-75 Walker Street, Redfern NSW

Total floor area

9,304m² NLA

PROJECT TEAM

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

The project at a glance:

- All 106 apartments are naturally-ventilated and there is no air conditioning in the development
- 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
- Rainwater harvesting for toilet flushing and laundry
- Greywater treatment system for landscape irrigation
- Exceeding the benchmarks of TRA-1 by providing significantly less car parking than the minimum – 6 dedicated disabled parking spaces are provided on the site
- There is no general parking but generous bicycle storage is provided
- Remediation of a contaminated site
- Use of native landscaping.

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 said "The 5 Star Green Star rating for the Redfern housing redevelopment demonstrates leadership in innovation and design and underscores the State Government's commitment to leading the way in best environmental practice."

WHERE COMMUNITY BELONGS

The project involves 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 will be comprised of 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 promotes 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.

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 for the future, 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 (INN-1).

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.



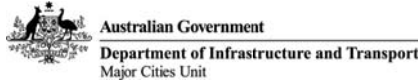
Green Star Communities National Framework



Principal sponsor



Australian Government sponsor



Government Land Organisation sponsors



Gold sponsors



Dedicated to a better Brisbane



Silver sponsors



Project Partners



Project Supporters

Cronepartners

HASSELL

Manidis Roberts

Tract

WSP



The Green Star Communities Framework is a vision, a set of principles and aspirations to help guide and support the development of sustainable communities.

The intention of this framework is to provide inspiration and to contribute to a national conversation about how we plan, design, build, maintain and renew sustainable communities.

Contents

A sustainable communities vision for Australia	4
What is a community?	5
Opportunities for sustainable communities	6
About this framework	7
Principle 1: Enhance Liveability	8
Principle 2: Create Opportunities for Economic Prosperity	9
Principle 3: Foster Environmental Responsibility	10
Principle 4: Embrace Design Excellence	11
Principle 5: Demonstrate Visionary Leadership and Strong Governance	12
Applying the principles	13
Acknowledgements	15

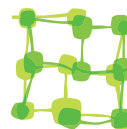
A sustainable communities vision for urban Australia

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.

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.

The GBCA's national principles for sustainable communities are to:



Enhance liveability



Create opportunities for economic prosperity



Foster environmental responsibility



Embrace design excellence



Demonstrate visionary leadership and strong governance.

What is a community?

For this framework the term 'community' encompasses the ideas of precinct, place, neighbourhood or other geographic areas that may be used by stakeholders to describe their projects.

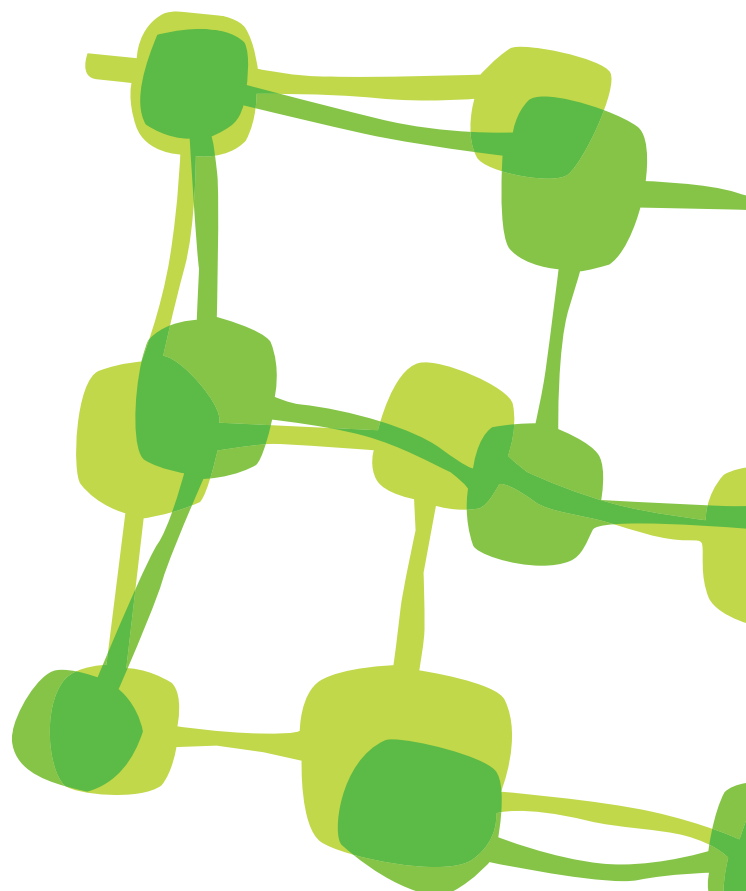
In fact, there are numerous terms that are often associated with sustainable development projects which tend to be used interchangeably, and for some, they draw different reactions, ideas, definitions and outcomes.

For the purposes of this framework, we have identified the following attributes that may be characteristic of communities regardless of size and nature:

- **Infrastructure:** systems and services which supply our energy and water, manage our waste, communications, technology and provide for mobility
- **Buildings:** built form that accommodates activities associated with working, living and recreation, both public and private
- **Public realm:** areas accessible to the public
- **People:** those who may own, rent, occupy, visit, work, reside, recreate or interact in the area
- **Ecology:** biological systems within the environment
- **Economy:** systems supporting the production, exchange, distribution and consumption of goods and services
- **Governance:** rules, behaviours and structures that shape and influence communities
- **Services:** information and facilities that are available to people.

Each community will have its own boundary of influence. In applying this framework projects should define the relevant boundary and dimensions of its influence for the above attributes and apply the five principles accordingly.

Whether it is a small precinct or a large city, the idea of community as defined by the five principles should be applicable and scalable across many types of projects.



Opportunities for sustainable communities

Australia's sustainable cities agenda

If current trends continue, Australia's population is expected to rise by 60 per cent by 2050, reaching almost 36 million people. Most of us – nearly 85 per cent – will choose to live in cities, with two-thirds of our population residing in our major cities.

This trend in growth will challenge us and be influenced by ecological limits and natural resource constraints, particularly diminishing supplies of oil worldwide, a changing climate, pressures on water supplies, reduction in arable land, the growing need for employment and access to affordable, liveable and enjoyable places. Our demographics will also change, with an ageing population and more immigrants coming to Australia, as detailed in the *2010 Intergenerational Report*.

We are, however, in the enviable position of being able to shape the progress of our existing and future communities. This is why the Australian Government is establishing a clear urban cities agenda for the nation, augmented by the *State of Australian Cities 2010 report*, to ensure our cities grow efficiently with respect to major infrastructure networks (such as transport and communication networks), are affordable and liveable, are more compact in their urban form and shape a sustainable legacy for future generations.

Sustainable cities and the Green Building Council of Australia

Acknowledging the challenges of a growing nation, in 2009 the Green Building Council of Australia (GBCA) commenced a consultation process with its members, government and industry stakeholders to identify potential opportunities for supporting this national cities agenda.

With its core business being the development and administration of comprehensive and robust rating tools for the built environment, government and industry identified the GBCA as the most appropriate organisation to lead the development of a rating tool that could help create a greater demand for more sustainable development projects at a community scale.

The Green Star Communities rating tool is being developed in two stages:

- **Stage 1:** development of a national framework for sustainable communities that establishes five national best practice principles to guide sustainable communities in Australia; and
- **Stage 2:** development of the rating tool which provides best practice benchmarks informed by the framework and used for assessing sustainable communities. Stage 2 will also define appropriate governance processes for accreditation, certification, review and continual improvement.



About this framework

While sustainable community ideas permeate much of the policy and planning we see at various state and local government levels, greater guidance and consistency at a national level is needed. For some time, key industry and government stakeholders have had a vision to establish a nationally consistent language for new and existing sustainable communities, neighbourhoods, precincts and places. With government and industry support, the GBCA has made a commitment to help achieve such an outcome. This framework is the first part of that vision.

The framework is not designed to provide specific development solutions or strategies nor is it intended to provide case study examples of sustainable communities.

The objectives of the framework are to:

- Provide national consistency and a common language around the definition of best practice sustainable communities
- Encourage innovation and excellence in our approach to creating communities of the future
- Promote integration and collaboration across the spectrum of sustainability issues relating to sustainable communities
- Facilitate stakeholder engagement during the evolution of sustainable communities
- Provide a basis for consistent and ongoing assessment and evaluation of sustainable communities.

The framework is aspirational and visionary. It provides a high level framework for structuring sustainability actions and ideas for projects. It does so through its five principles, which are:

- Enhance liveability
- Create opportunities for economic prosperity
- Foster environmental responsibility
- Embrace design excellence
- Demonstrate visionary leadership and strong governance

While these five principles are outcomes focussed, they are not achievable without an integrated approach to their application. Sustainable communities evolve by threading integrated approaches and behaviours throughout our actions. Sustainable communities also require a collaborative approach to development which recognises the complexity of the development process. All stakeholders need to work together towards a shared outcome, or risk the vision for the sustainable community being lost in the complexity of the process.

As such, this framework also establishes a process to ensure the principles can be applied with integrity, by encouraging stakeholders to:

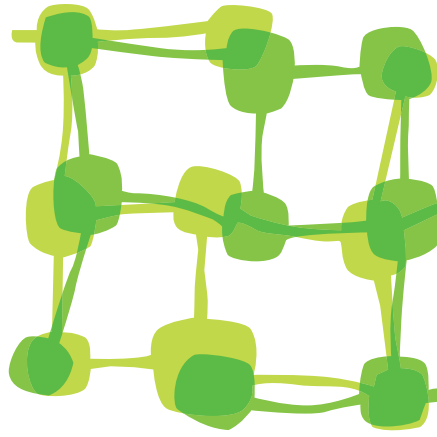
- Apply all five principles
- Define each community's unique boundaries
- Adapt the principles for context
- Adopt a systems approach
- Acknowledge and apply existing tools, plans, codes and guidelines
- Apply the principles in a transparent and accountable way.

Furthermore, the framework acknowledges that there are numerous existing tools and mechanisms being used in Australia and internationally that help guide the evolution of sustainable communities. This framework does not replace them, but rather provides a broader context for the consideration of them in development and application.

Finally, it is recognised that planning plays a major role in defining the character and development of communities from a structural perspective and this framework serves to enhance that process and provide a mechanism to utilise best practice approaches to deliver sustainable outcomes.

Principle 1:

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. In applying this principle the following should be considered:

Providing diverse and affordable living

- Providing a diversity of dwellings, buildings and facilities that reflect the broad socio-economic needs of the community
- Access to local services such as transport, food, health and conveniences

Creating healthy, safe and secure communities

- Enabling and promoting healthy and safe communities through partnerships and effective planning, urban design and landscape architecture that support physical activity and social engagement
- Providing opportunities for and raising the awareness of healthy activities within the community

Fostering inclusiveness and cohesiveness

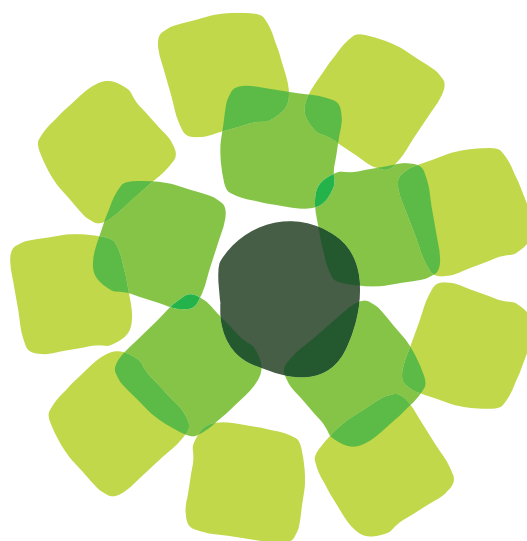
- Providing diverse and inclusive environments for all ages, abilities, cultures and socio-economic backgrounds of the community
- Facilitating community cohesion by developing a shared vision, embracing diversity and tolerance, respecting each others' rights and responsibilities and reflecting these values in the built environment
- Engaging stakeholders in the evolution of their communities, from policy to ongoing revitalisation, evaluation and adaptive management

Building community adaptability

- Building capacity to adapt to changing community and individual needs and expectations whether influenced by the economy, environment, culture or other life circumstances
- Creating opportunities for a diversity of uses and activities that enable communities to meet future challenges.

Principle 2:

Create Opportunities for Economic Prosperity



Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region. In applying this principle the following should be considered:

Promoting education and learning

- Providing opportunities for the community to access a variety of education and learning systems

Enhancing employment opportunities

- Creating diverse employment opportunities that meet the needs of local and regional communities and facilitating access to them
- Encouraging the production and procurement of local goods and services

Attracting investment

- Providing key infrastructure that enables community and business connectivity
- Enabling ongoing sustainable and ethical investment in local business opportunities
- Establishing a business case, inclusive of externalities, for green infrastructure systems and jobs and providing a commitment to implementation

Encouraging innovation

- Encouraging business and community innovation through initiatives that recognise and reward local excellence
- Facilitating new business opportunities to enhance competitiveness and innovation

Promoting efficiency and effectiveness

- Applying lifecycle impact management approaches to encourage resource efficiency and reduced lifecycle costs
- Investing in infrastructure that creates greater urban management efficiencies.

Principle 3:

Foster 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. In applying this principle the following should be considered:

Enhancing our natural environment

- Protecting, valuing, restoring and enhancing our natural and cultural heritage assets, both water and land-based
- Promoting biodiversity through the provision of habitats, spaces and environments across the community and urban areas
- Reducing greenhouse gas emissions, contaminants and other pollutants to land, water and atmosphere
- Minimising the risk from extreme natural events and impacts of climate change

Reducing ecological footprint

- Promoting environmentally efficient systems for water and wastewater management and reuse; sustainable energy generation and distribution; and waste management and recycling
- Encouraging greater resource efficiency within a life cycle context
- Reusing and retrofitting existing sites and buildings
- Providing sustainable transport opportunities and encouraging their use
- Promoting food security and sustainable food production
- Educating communities on their individual and collective impacts by making resource savings and consumption data explicit within the built environment.

Principle 4:

Embrace Design Excellence



Sustainable communities are places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve overtime. In applying this principle the following should be considered:

Adopting effective planning practices

- Establishing an integrated planning framework for delivering a shared design vision in collaboration with all partners
- Planning for considered density, mixed use, connectivity and the protection of valuable land uses such as agriculture
- Defining specific design outcomes which are clear and measureable

Encouraging integrated design

- Understanding the context of a community, precinct or site and its relationship with neighbouring areas as well as the region as a whole in creating of a sense of place
- Responding to land, water and climatic based planning and design constraints and opportunities
- Creating coherent urban structure and connectivity between places
- Providing effective connectivity between transport, communication, social and physical infrastructure systems

Maintaining flexible and adaptable approaches

- Creating opportunities to retrofit and revitalise existing communities, precincts, places and buildings
- Providing for development and planning flexibility and adaptability that supports continuous improvement of the built environment
- Adapting effectively to changing climatic and other environmental and physical conditions so that people's comfort, health, safety and well-being are enhanced

Creating desirable places

- Reinforcing a sense of place, community identity and local character within design
- Creating a sense of connection with nature
- Encouraging a high quality, integrated and safe public realm that meets the needs of the local community
- Providing quality built form and landscapes that are responsive to climate and context
- Conserving and celebrating cultural heritage and archaeological assets across landscapes, places and sites
- Creating functional, vibrant, stimulating and memorable places that evolve for people to live, work and play

Promoting accessibility

- Locating higher densities close to public transport and services to encourage active transport, promote public health and enhance public transport use
- Encouraging accessibility, diversity and mixed use development to reflect local values and meet both local and metropolitan needs.



Principle 5:

Demonstrate Visionary Leadership and Strong 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. In applying this principle the following should be considered:

Establish coordinated and transparent approaches

- Facilitating coordinated approaches among cross-sectoral stakeholder interests
- Establishing transparent and accountable decision-making processes through inclusion and provision of information
- Establishing practical standards of responsibility, resource allocation and programming that is accessible to stakeholders

Build a commitment to implementation

- Developing practically enforceable standards of ownership, accountability and delivery
- Incorporating performance evaluation, feedback and support mechanisms that provide opportunities for continual improvement

Engaging with stakeholders

- Building a shared vision with stakeholders across community, industry and government
- Monitor progress towards this vision by building community capacity, assessing performance and encouraging ownership and leadership in realising that vision

Fostering sustainable cultures and behaviours

- Raising awareness among stakeholders and providing education and learning opportunities that enable more sustainable practices
- Encouraging sustainable behaviours and systems for monitoring environmental data, sharing information and allowing for continual improvement mechanisms

Encouraging and rewarding innovation

- Providing open access information sharing to enable innovation to be enhanced
- Recognising and rewarding leadership in innovation and excellence.

Applying the principles

It is expected that these principles will be of interest to government, developers, builders, planning and design professionals and communities. The potential application of the principles by these stakeholders is likely to be diverse and some example uses are provided in the table overleaf. Regardless of how stakeholders use the principles, the following steps should be followed:

Apply all five principles.

A sustainable community applies a broad sustainability lens, making sure environmental, social, economic, design and governance outcomes are achieved. A sustainable community will recognise the benefits of embedding all five principles for all relevant stakeholders within their community. While the issues and strategies underpinning each principle may vary, the overall outcome being sought by each principle should be embodied in each policy, plan or project.

Define community boundaries.

Each community has boundaries of influence that include geographical, cultural, virtual or place-based, environmental and/or economic. Each community should identify its relevant boundaries and the dimensions of its influence for the purposes of applying the five principles.

Adapt for context.

The range of issues that underpin the principles will not apply to all communities, nor will they be relevant to each lifecycle stage. It is necessary that each community define how it responds to each principle by considering the issues provided in this document to create a local set of objectives and strategies. In adapting the issues relevant to each principle, the lists provided should be reviewed for their relevance and supplemented or reduced as appropriate. Issues should be refined in detail to ensure they are relevant to the project, but remain contextually relevant to the overarching principle. Finally, a project may wish to prioritise and/or weight the importance of the issues.

Adopt a systems approach.

In a systems approach, the principles are applied in way that helps optimise the synergies and trade-offs. This requires an understanding of the interactions between, for example, the liveability and environmental principles, prosperity and design principles, as well as how the governance principles influence the achievement of them all.

Acknowledge and apply existing tools, plans, codes and guidelines.

A community needs to identify and understand how a range of tools, plans, codes and guidelines may assist in successfully applying the framework's principles. Not all tools are the same and often they have very different purposes. Some tools assess performance, some test options and some certify outcomes. Some tools are a vehicle for establishing and demonstrating regulatory compliance while others seek outcomes beyond minimum practice and strive for innovation.

Apply in a transparent and accountable way.

The best practice application of these principles needs to be in an open and accountable way. The review and refinement of the issues underpinning the principles should be undertaken with relevant stakeholders and be open to public scrutiny and input.



PROJECT STAGE	EXAMPLE USER	POTENTIAL APPLICATION	ANTICIPATED OUTCOMES
Policy making	State government department of planning	Principles are used to inform the development of strategic directions and policies within a regional plan.	Regional policies promote best practice sustainable community development.
Regional and town planning	A consultant planner	Principles are used in the drafting of a new planning scheme, informing the scheme's desired planning outcomes for the region/town.	Planning scheme contains localised best practice strategies for a sustainable city.
	Local government planner	Principles used to assess a community development plan at the statutory planning stage to promote adoption of sustainable communities approach.	Future community development applications assessed against best practice standards.
Community planning	Local government planner	Principles are used to identify the potential components of a new neighbourhood plan, or to review an existing one.	Existing neighbourhood plan updated to include a full spectrum of sustainability initiatives.
	Community members and community organisations, NGO's and activists	Principles could assist in community capacity building and community engagement to ensure that local values are reflected in the planning of a community and local people understand the process.	An informed community that builds ownership in the local constraints, opportunities and solutions for its area.
Design	Government or private developer	Principles are used to brief the design team and their scope, ensuring that detailed assessment methodologies and tools align with the principles contained in the framework.	Design options that address best practice elements of a sustainable community.
Finance	Commonwealth Government	Principles are used as part of funding criteria to ensure that projects optimise sustainability outcomes.	Funding is directed to investments that provide an optimal sustainable community legacy.
Tendering	Owner, developer, government	Principles are used in Request for Tenders or Expressions of Interest for specific community developments.	Contractors are engaged and have embedded sustainability as a core outcome of the community development.
Deliver	Construction contractor	Principles are used to inform the company's research program around community infrastructure delivery.	Continual improvement of delivery practices for sustainable community developments.
Evolve and maintain	Neighbourhood community group, Chamber of Commerce and other member groups	Principles are used to prioritise funding applications for community infrastructure improvements and maintaining dialogue with community members, local agencies and local political representatives.	Ongoing community investment is sustained and focussed on the sustainability issues local to the area.
Revitalise and retrofit	Alliance partnership including local government, design consultants and contractors	Principles are used to structure design workshops for the renewal of buildings, open space, playground and/or community hall facilities.	Scoping of an urban retrofit project that ensures holistic sustainable outcomes.
Marketing	Consumer, the public	Principles are used to assist the public understand what broadly constitutes a sustainable community and the standard applied.	An informed consumer who makes the decision to adopt a more sustainable lifestyle.

Acknowledgements

Sponsors

The Green Building Council of Australia would like to thank the following project sponsors for their generous contribution.

Principal sponsor	Rock Development Group
Australian Government Sponsor	Department of Infrastructure and Transport - Major Cities
Government Land Organisation sponsors	Hunter Development Corporation, Land Development Agency, Land Development Corporation, Land Management Corporation, Landcom, Landcorp, Urban Renewal Authority, Places Victoria
Gold sponsors	Barangaroo Delivery Authority Brisbane City Council Brookfield Multiplex, Gocon,

Lend Lease, Aurecon, Stockland

The University of Melbourne, Sydney Harbour Foreshore Authority, Brisbane Airport, Australand

Silver sponsors

Australian National University, Mirvac, Sustainability Victoria, City of Sydney, BlueScope Steel, City of Melbourne

Project Partners and Supporters

The GBCA would like to acknowledge the ongoing strategic support and contribution of its project partners and supporters.

The full listing of the Green Star - Communities Sponsors can be found at: greenstarcommunities.org.au.

Project Leader

Adam Beck Green Building Council of Australia

Steering Committee

Romilly Madew (Co-chair)

Green Building Council of Australia

Pru Sanderson (Co-chair)

VicUrban

Gordon McAllister

Department of Climate Change and Energy Efficiency

Andrew Cooper (TRC Chair)

Leighton Properties

Sue Holliday

Built Environment Industry Innovation Council

Matthew Inman

CSIRO

Tom Roper

Australian Sustainable Built Environment Council

Neil Savery

Planning Institute of Australia

Technical Reference Committee

Andrew Cooper (Chair)

Leighton Properties

Andrew Aitken

Green Building Council of Australia

Mark Allan

Mirvac

Michael Ambrose

CSIRO

Karen Boyd

Northrop

Prof. Laurie Buys

Queensland University of Technology

Rafael Chemke

Sydney Harbour Foreshore Authority

Cate Collins

Lend Lease

Chris Derksema

City of Sydney

Phil Donaldson

South Australia Land Management Corporation

Steve Driscoll

New South Wales Landcom

Maria Efkarpidis

Rock Development Group

Liz Johnson

Municipal Association of Victoria

Evan Jones

Brookfield Multiplex

Caryn Kakas

Residential Development Council

Brian Moore

Grocon

Marcus Mulholland

Brisbane City Council

Peter O'Dwyer

Planning Institute of Australia

Jeff Robinson

Aurecon

Sean Rooney

SKM

Dr. Wendy Sarkissian

Sarkissian Associates Planners

George Tieman

VicUrban

Siobhan Toohill

Stockland

Matt Toon

Queensland Urban Land Development Authority

Tony Watson

Barangaroo Delivery Authority

Barton Williams

Western Australia LandCorp

Ian Wood-Bradley

ACT Land Development Agency

Brisbane

Level 2
79 Adelaide St
Brisbane QLD 4000
T / 07 3229 3299
F / 02 8252 8223

Sydney

Level 15
179 Elizabeth St
Sydney NSW 2000
T / 02 8239 6200
F / 02 8252 8223

Melbourne

Level 17
500 Collins St
Melbourne VIC 3000
T / 03 8612 2000
F / 03 9614 8338

www.greenstarcommunities.org.au



green building council australia