

GREEN STAR MULTI UNIT RESIDENTIAL v1 TOOL FACT SHEET & BUSINESS CASE

VERSION 1 (V1) RELEASED JULY 2009



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INTRODUCTION

The Green Building Council of Australia (GBCA) launched the Green Star – Multi Unit Residential v1 rating tool on 2 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.

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.

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 merits of a building at the design phase as well as post-construction phase (known as 'As-Built').

WHY BUILD GREEN?

Green buildings are better for the environment

Residential buildings in Australia are responsible for 13 per cent of the nation's greenhouse gas emissions. In fact, Australia's greenhouse gas emissions per home is one of the highest in the world.

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 buildings do just that. The first Green Star – Multi Unit Residential

PILOT 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 to reuse around 80 per cent of the site waste. It also provides more than 90 per cent of apartments with dual aspect to allow natural ventilation, as well as solar shading, energy efficient appliances and rainwater storage.

Green buildings are cheaper to operate

Because they conserve energy and water, green buildings are cheaper to operate. For example, [The Solaire](#) in New York City was the first high-rise residential project to receive LEED Gold Certification from the US Green Building Council (USGBC). Among the building's benefits are highly filtered, conditioned and humidified air in every residence, and substantial savings in electricity and water consumption. Tenants benefit from utility cost savings that range from 37-64 per cent.

Green buildings are healthier buildings

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 those in a daylit room achieved a 20 per cent faster progression in maths and 26 per cent progression in reading.

Green buildings attract tenants and investors

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. Green buildings are easier to market in an

environment where people want to be a part of the solution to climate change. For example [Blair Towns](#) in Maryland, USA, was the first LEED-certified apartment community. Located in a neighbourhood with occupancy rates of roughly 88 per cent to 92 per cent, the complex was fully leased up within a year of its completion in 2003, and continues to attract tenants by providing a 36 per cent reduction in energy costs, proximity to transport and on-site shopping and restaurants.

Green buildings offer a fast payback

Green features are a smart investment in any residential building, with a fast payback time ensuring owners save money in the long-term. The [Green and Save website](#) provides return on investment (ROI) calculations which clearly demonstrate the payback of green developments:

- A green 'tune up' has a payback time of around 1.2 years. Simple measures such as installing compact fluorescent lighting and water efficient shower heads, sealing duct leaks and purchasing an energy efficient dishwasher can provide a 96.5 per cent return on investment over ten years.
- A 'green remodelling' project – such as improving insulation and window treatments, replacing inefficient water heaters and installing a greywater system – will cost more but the return on investment will be 26.8 per cent over ten years, with a 4.2 year payback.
- An advanced green renovation program which embraces leading edge technology and green design will still have a payback period of just 8.7 years – and will provide a 11.8 per cent return on investment over twenty years.

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- Protect ecosystems and biodiversity
- Improve air and water quality
- Reduce waste
- Conserve natural resources
- 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:

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'

The Green Star 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.

The GBCA provides certification of 4, 5 and 6 star ratings. Projects that achieve 1, 2 and 3 star ratings will not be certified by the GBCA as Green Star aims to recognise and reward best practice and above.

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CATEGORIES AND CREDITS IN GREEN STAR – MULTI UNIT RESIDENTIAL V1

Management

- Green Star Accredited Professional
- Commissioning Clauses
- Building Tuning
- Independent Commissioning Agent
- Building Users' Guide
- 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

- 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

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

- 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
- Environmental Design Initiatives

Emissions

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% |
| TOTAL | 100% |

SPONSORS

The development of Green Star – Multi Unit Residential v1 rating tool was sponsored by Brisbane City Council, The Laminex Group and The City of Sydney.

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NEXT STEPS

1. **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
2. **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. Find out more at: www.gbca.org.au/membership/
3. **Register your project for Green Star accredited assessment.** This independent third party process costs between \$5,000 and \$30,000, depending on the project. Find out more about the certification process and how to register: www.gbca.org.au/green-star/certification
4. **Purchase a technical manual.** You'll find detailed information about the Green Star – Multi Unit Residential v1 rating tool, which can be purchased from our online store: www.gbca.org.au/shop/
5. **Attend a workshop.** The GBCA holds regular workshops on the Green Star rating tools. To take a Green Star Accredited Professional course or master class, register online at: www.gbca.org.au/courses.asp
6. **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

CONTACT

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

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