Introducing Green Star – Design & As Built

November 2014

greenstar Developed by the Green Building Council of Australia

The market has come a long way since the introduction of Green Star in 2003. What was challenging has become standard practice. What was unknown has been defined.

Our industry must continue to move forward. Green Star – Design & As Built is the next step.

Green Star – Design & As Built provides the independent certification of sustainability for which Green Star is known, with some great benefits:

Broader sustainability impact

Sustainability is about much more than energy and water efficiency. Green Star – Design & As Built encourages industry to create places that are not just green but healthy, liveable, productive, resilient and sustainable.

Outcomes driven

To transform the built environment we need verifiable results, not just good intentions. Green Star – Design & As Built assesses and certifies completed buildings, with an optional Design Review.

Updated benchmarks

Green Star – Design & As Built drives continuous improvement through updated benchmarks for sustainable design and construction and sets the foundation for optimal building performance.

Flexible and more cost-effective

Our goal is sustainable places for everyone. Green Star – Design & As Built rates buildings of all types and sizes, includes easy-to-use templates, streamlined documentation and flexible ways to demonstrate sustainability, making certification simpler and more cost-effective.

Developed by industry

Through extensive industry consultation Green Star – Design & As Built has been developed by the Australian property industry, for the Australian environment.

3.

Our aim is sustainable places for everyone. The next step to achieve this is Green Star – Design & As Built.

1.

4.

2.

Early Adopters

1. Investa Office, Sydney
2. 30 The Bond, Sydney
3. Council House 2, Melbourne
4. 8 Freshwater Place, Southbank

Green Star – Design & As Built assesses the design and construction of any building or major refurbishment.

From schools to skyscrapers, Green Star – Design & As Built rates projects of any size, shape or complexity.

- **Offices**
- **Retail centres**
- **Industrial facilities**
- **Apartments**
- **Hospitals**
- **Schools and universities**
- **Assembly buildings**
- **Hotels**
- **Mixed use buildings**
- **Police and fire stations**
- **Sporting venues**
- **Laboratories**
- **Public buildings and many other building types.**

How does Green Star – Design & As Built work?

Registering a project for Green Star – Design & As Built is a commitment to certify a completed building. This ensures that the finished product delivers sustainable outcomes.

Green Star – Design & As Built also provides early feedback to project teams, ensures sustainability is embedded from the outset and enables projects to benefit from early promotional opportunities.

Projects receive a Green Star certification mark to promote their achievements at the Design Review and As Built stages.

Early in the design process

An optional Design Review gives projects the confidence they are on the right track and provides an early opportunity to promote a Green Star commitment.

Upon building completion

The As Built assessment certifies completed buildings and confirms that the finished product delivers sustainable outcomes.

Green Star – Design & As Built certification

green building council australia

6 greenstar

Design & As Built v1

The rating tool at a glance

Green Star – Design & As Built provides a rigorous and holistic rating across nine categories. Each category contains 'credits' which address specific issues.

Management

- Green Star Accredited Professional
- Commissioning and tuning
- Adaptation and resilience
- Building information
- Commitment to performance
- Metering and monitoring
- Construction environmental management
- Operational waste

Indoor Environment Quality

- Indoor air quality
- Acoustic comfort
- Lighting comfort
- Visual comfort
- Indoor pollutants
- Thermal comfort

Transport

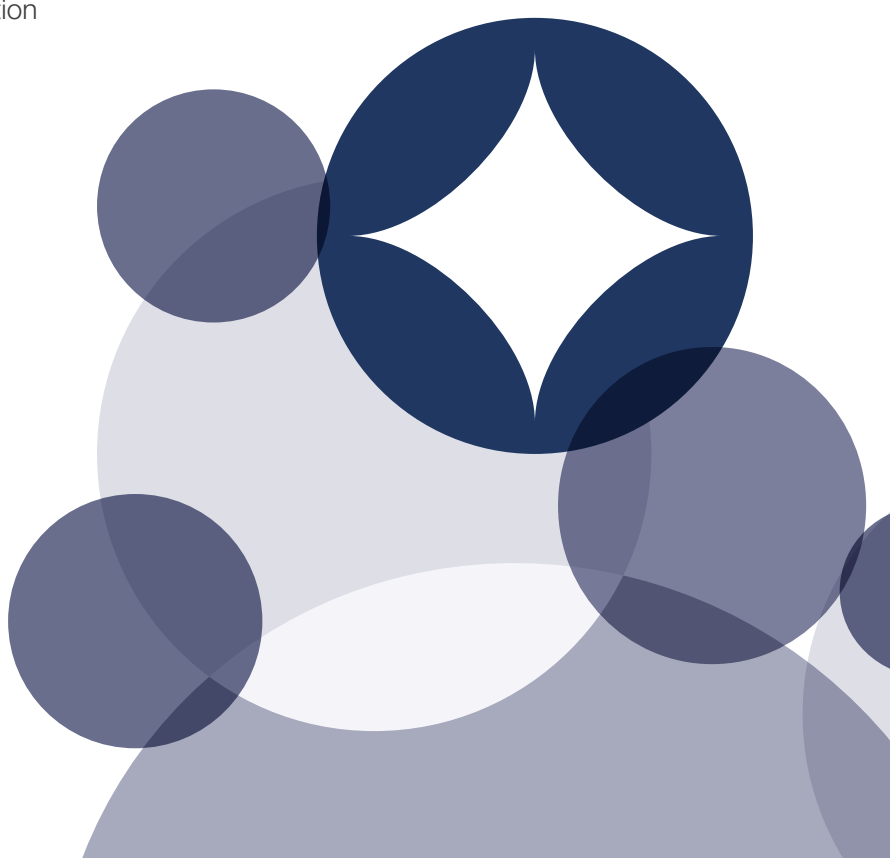
- Sustainable transport

Energy

- Greenhouse gas emissions
- Peak electricity demand reduction

Water

- Potable water



Materials

- Life cycle impacts
- Responsible building materials
- Sustainable products
- Construction and demolition waste

Emissions

- Stormwater
- Light pollution
- Microbial control
- Refrigerant impacts

Land Use and Ecology

- Ecological value
- Sustainable sites
- Heat island effect

Innovation

- Innovative technology or process
- Market transformation
- Improving on Green Star benchmarks
- Global sustainability
- Innovation challenges:
  - Building air tightness
  - High performance site office
  - Energy metering integrity
  - Financial transparency
  - Marketing excellence
  - Market intelligence and research
  - Design for active living
  - Local procurement
  - Social return on investment
  - Community benefits
  - Contractor education
  - Affordable housing
  - Culture, heritage & identity

Innovation challenges are updated regularly and we encourage new challenges to be submitted.

New credits

Green Star – Design & As Built incorporates a number of new credits to drive market transformation through updating sustainability benchmarks and broadening the impact of a Green Star certification.

- **Commitment to performance:** recognises good practices that ensure buildings perform well during operation.
- **Adaptation and resilience:** rewards buildings that are designed to be resilient in the face of a changing climate and extreme weather events.
- **Life cycle impacts:** encourages the holistic reduction of environmental impacts of building materials.
- **Responsible building materials:** recognises the use of building materials that have been sourced responsibly or have Chain of Custody certification.
- **Sustainable products:** rewards projects that specify building products that can demonstrate their sustainability credentials through Environmental Product Declarations and third-party certification.
- **Heat island effect:** rewards projects that take steps to reduce their influence on the heat island effect in our cities.
- **Sustainable transport:** includes new pathways to demonstrate sustainable transport initiatives, including a Google Maps-powered calculator, and encourages walking and cycling.

New credits challe
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continuously and
the world in whic

Building 215 Engineering Pavilion, Bentley WA
5 Star Green Star – Education Design v1 rating

The business case for Green Star – Design & As Built

There are clear economic, social and environmental benefits for certifying sustainable buildings with Green Star – Design & As Built.

Economic benefits

Smart design, clever material choices and optimised building management systems lead to lower operating and capital costs, higher returns on investment and deliver a defining edge in a competitive market.

Higher return on investment

Green Star-rated buildings deliver consistently higher returns on investment compared to their non-green counterparts.

- Green Star-rated buildings deliver a 12% 'green premium' in value and a 5% premium in rent, when compared to non-rated buildings.[1]
- Green Star-rated CBD office assets delivered a total annualised return of 10%, outperforming the CBD office market by 100 basis points.[2]
- Price premiums for green buildings could be up to 30% – and the higher the level of certification, the better the results.[3]

Lower operating costs

Green Star-rated buildings are high-performing. They are energy and water efficient which makes them cheaper to operate.

- Houses with a higher energy ratings are cheaper to operate and cost less to build than poorer performing homes.[4]
- A typical financial or professional services firm operating from a 5 Star Green Star-rated office of 5,000 square metres could save $18,200 a year in electricity costs alone.[5]
- A minimal 2% upfront cost to support green design can result in average life cycle savings of 20% of total construction costs — more than 10 times the initial investment.[6]

Greater tenant attraction

Greener buildings help attract prospective tenants and retain existing tenants.

- 95% of tenants want to be in a green building. 'Green space' is one of the top four attributes tenants look for – along with bike racks, childcare facilities and a gym.[7]
- 92% of corporate organisations globally consider sustainability criteria when making their tenancy decisions.[8]
- Buildings with a green rating report an occupancy rate increase of up to 23%.[9]
- Green buildings have 3.5% lower vacancy rates and 13% higher rental rates than the wider market.[10]

1. Building Better Returns Report, Australian Property Institute (2011)
2. IPD Australia, Quarterly Green Property Index (June 2014)
3. World Green Building Council's Business Case for Green Building (2013)
4. The Evaluation of the 5-Star Energy Efficiency Standard for Residential Buildings, CSIRO, (2013)
5. Why Choose a High Performing Building, CitySwitch (2013)
6. World Green Building Council's Business Case for Green Building (2013)
7. Tenant Sentiment Survey, Colliers International (2012)
8. Global Corporate Occupier Sustainability Report, Jones Lang LaSalle (2011)
9. World Green Building Council's Business Case for Green Building (2013)
10. CBRE, Do Green Buildings Make Dollars and Sense? (2009)

Economic benefits at a glance

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Social benefits

Indoor environments that are light and well-ventilated are healthier and more productive — great for building occupants and the bottom line.

A healthier place to work, live, play and heal

Sustainable building design emphasises natural light and fresh air, and reduces exposure to harmful chemicals and toxins. As a result, green buildings are healthy places to live, work, play and heal.

- Tenants in green buildings report an average of 2.88 fewer sick days per annum in their current green office versus their previous non-green office.[11]
- Green schools and universities can deliver a 41.5% improvement in the health of students and teachers.[12]
- Green design in hospitals has been found to deliver:
  - 8.5% reduction in hospital stays
  - 15% faster recovery rates
  - 22% reduction in need for pain medication
  - 11% reduction in secondary infections.[13]

Community leadership and recognition

Building sustainably is increasingly recognised as a clear expression of commitment to the environment and leadership in the community.

- Green building practices are more likely to attract grants and subsidies that demonstrate environmental stewardship, increase energy efficiency and reduce greenhouse gas emissions.[14]

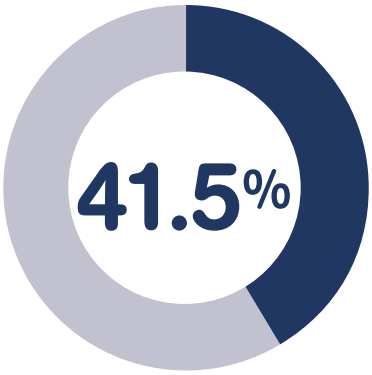
Increased indoor comfort and productivity

Green building design is focused on creating comfortable indoor environments. When we are comfortable, we are more productive.

- Analysis of existing research on building design attributes and workplace productivity found:
  - Up to 3% increase in productivity when people had individual temperature control of their workspace
  - Up to 11% productivity gains from improved ventilation
  - Up to 18% increase in productivity from access to daylight and operable windows
  - Up to 23% improved productivity from well-designed lighting.[15]
- In the retail sector, good environment quality has been shown to increase sales by up to 40%.[16]
- A typical financial or professional services firm operating from a 5 Star Green Star-rated office of 5,000 square metres could save $262,014 a year simply through reduced absenteeism.[17]
- An office enriched with plants makes staff happier and boosts productivity by 15%.[18]
- Classroom environments can affect academic progress by as much as 25%[19] with students in green-rated school buildings achieving up to 14% higher test scores.[20]

11. CBRE's Do Green Buildings Make Dollars and Sense? (2009)
12. Greening America's Schools: Costs and Benefits (2006)
13. World Green Building Council's Business Case for Green Building (2013)
14. The Royal Institution of Chartered Surveyors' report, Green Value: Growing Buildings, Growing Assets (2006)
15. World Green Building Council's Business Case for Green Building (2013)
16. Daylight and Retail Sales, Hershong Mahone (2003)
17. Why Choose a high performing building, CitySwitch (2013)
18. The relative benefits of green versus lean office space: Three field experiments, Journal of Experimental Psychology: Applied, Vol 20(3) (2014)
19. Improved Learning Through Classroom Design, The University of Salford and Nightingale Architects (2012)
20. Greening America's Schools: Costs and Benefits, Capital-E Reports, G.Katz (2006)

Social benefits at a glance



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Environmental benefits

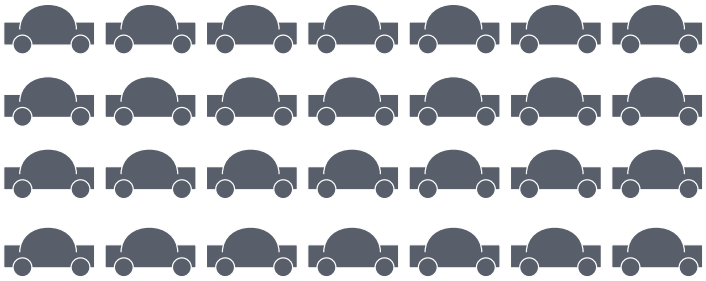
Reduced energy and water use, responsibly-sourced materials and diverting waste from landfill all lessen the impact on finite resources. At the same time, encouraging behaviour change to reduce energy and car usage can significantly decrease harmful emissions.

- Green Star-certified buildings produce 62% fewer greenhouse gas emissions than average Australian buildings.[21]
- On average, Green Star-certified buildings use 51% less potable water than if they had been built to meet minimum industry requirements.[21]
- 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 CO_2 each year.[21]
- Green Star-certified buildings save enough potable water to fill 1,320 Olympic swimming pools every year – that is, more than 3,300,000 kL each year.[21]
- Green Star-certified buildings save the equivalent of 76,000 average households' electricity use annually.[21]
- 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.[21]

For the full story on why building green stacks up please visit: **gbca.org.au/why-use-green-star**

21. The Value of Green Star: A Decade of Environmental Benefits (2013)

Environmental benefits at a glance



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How to register a project

Registration of a project occurs when a certification agreement is signed and the certification fee is paid.

Projects can register online at anytime through the GBCA website.

Certification fees

The Green Star – Design & As Built certification fee includes two assessments for one fee — an 'As Built' assessment and an optional 'Design Review' assessment.

The fee is determined based on a project's contract value and the applicant organisation's GBCA membership status.

Rating Scale

Green Star – Design & As Built rewards buildings with ratings from 4 Star (Best Practice) to 6 Star (World Leadership).

1 Star	2 Star	3 Star	4 Star	5 Star	6 Star
10	20	30	45	60	75+
Percentage of available points	Percentage of available points	Percentage of available points	Percentage of available points	Percentage of available points	Percentage of available points
Minimum Practice	**Average Practice**	**Good Practice**	**Best Practice**	**Australian Excellence**	**World Leadership**
Not eligible for Green Star certification	Not eligible for Green Star certification	Not eligible for Green Star certification	4 Star Green Star	5 Star Green Star	6 Star Green Star

Eligibility criteria

Before registering for Green Star – Design & As Built, projects need to meet the following eligibility criteria.

Building type

Green Star – Design & As Built rates new buildings and major refurbishments. The majority of building types are eligible, including mixed use developments. Parking garages (BCA class 7a and 10) are not eligible.

Timing of submission for certification

To be eligible for certification the following timing milestones must be met:

As Built certified rating must be achieved within 24 months of practical completion. This certified rating does not expire.

Design Review certified rating must be achieved prior to practical completion. This rating will expire upon the first to occur:

- the project achieving an As Built certified rating, or;
- 24 months post practical completion.

A Design Review rating will expire if there is no intent to achieve an As Built rating.

Conditional requirements

Projects must meet the benchmarks set in the 'Greenhouse Gas Emissions' credit and 'Sustainable Sites' credit.

Distinct boundary

To provide a meaningful result certification must apply to an area or site that is clearly distinct. Project components are not eligible. Shared building services or amenities such as waste rooms or bicycle facilities do not affect a building's eligibility.

Other requirements

Projects must comply with all legal requirements including the Building Code of Australia and Occupational Health and Safety requirements.

Unsure if your project is eligible? We can help. Contact the Green Star team.

Transition an existing project

After December 2015, no new registrations will be accepted under legacy rating tools.

Existing projects can transition to Green Star – Design & As Built rating at any time. *Fees may apply.

October 2014
Green Star – Design & As Built registrations open

December 2015
Final date for registrations under legacy rating tools

January 2016
No new registrations accepted for legacy rating tools

Legacy rating tools are previous versions of Green Star rating tools which have been superseded by the release of Green Star – Design & As Built.

Green Star rating tools

The Green Star rating system assesses the sustainability of projects at all stages of the built environment lifecycle.

Green Star – Communities
Precinct planning and development

Green Star – Design & As Built
Building design and construction

Green Star – Interiors
Fitout design & construction

Green Star – Performance
Building operations and maintenance

Green Star – Design & As Built Education

The Green Star – Design & As Built Foundation Course is a full day training course. Taught face-to-face around the country, this is the best way to learn the essentials of this rating tool and how to apply it to your project. A Refresher Course is also available for experienced Green Star Accredited Professionals.

Contact education@gbca.org.au or go online to find out more.

No. 1 Central Park, Sydney
5 Star Green Star – Multi Unit Residential Design v1 rating

Let's talk

To find out more about Green Star – Design & As Built or for assistance with a project, please contact the Green Star team.

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