

APPENDIX A: BUILDING ENERGY EFFICIENCY CERTIFICATE



Australian Government

Applicable
State/Territory
Government
Crest

BUILDING ENERGY EFFICIENCY CERTIFICATE

Prepared in accordance with the Mandatory Disclosure Regulation 20xx

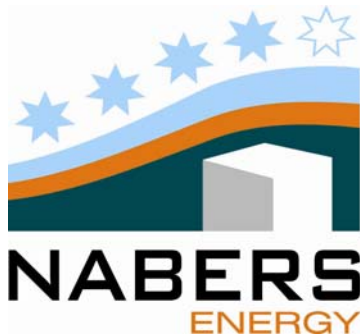
Building details:

XYZ Building
101 Something Street
SYDNEY NSW 2000
Number of storeys: 6
Net lettable area: 12,800m²
Year of construction: 1997

Certificate reference number:
2010-1234ABC

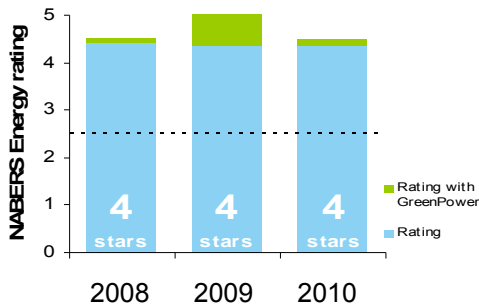
Certificate Expiry date:
30 September 2011

NABERS Energy Base Building Rating

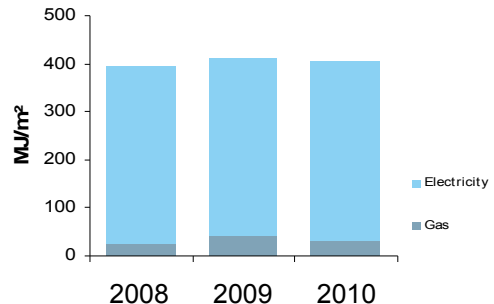


This building has achieved a
4-star NABERS Energy rating

Base Building Performance History



NABERS Energy Rating History



Energy Consumption History

Base Building Consumption Details

For the period 1 October 2009 to 30 September 2010, this building has:

- consumed **394 MJ/m²** of energy
- emitted a total of **1262 t CO₂-e**
- consumed 5% **GreenPower**

With **GreenPower** added this building has:

- reduced its greenhouse gas emissions by **58.4 t CO₂-e**
- improved its star rating to 4.5 stars

Tenancy Lighting

Location of tenancy: Level 3 east (*Further details to be provided upon assessment*)

Tenancy net lettable area: 2086 m²

This tenancy has AVERAGE lighting efficiency.

Lighting power density: 12 W/m²

Office lighting energy use in this tenancy are approximately 55,000 KWh per annum

Level of Lighting Control

- Full time occupancy sensors and daylight dimming
- Full time occupancy sensors
- Time based sensors with periodic resets
- Manual control via distributed switches
- Manual control via single switch place

Building Assessor Details	About NABERS Energy Ratings
Assessor name: John Smith	1 Star – Poor energy management or outdated systems
Assessor number: XYZ012345	2 Star – Below average building performance
Business name: Energy Engineering	3 Star – Good – above average market performance
Business address: 12 One St Sydney NSW 2000	4 Star – Very good - strong performance
	5 Star – Excellent - best building performance
	NABERS Energy ratings are calculated on the basis of 12 months of energy data, taking into account location, size and hours of occupancy of the building.

NABERS Energy is managed by NSW Department of Environment and Climate Change on behalf of the Australian, State and Territory Governments.

Mandatory Disclosure Regulation 20xx is administered by the Australian Government Department of the Environment, Water, Heritage and the Arts in partnership with the State and Territory Governments (or specific State/Territory Govt where the building is located).

Further information about how to interpret and use this certificate is available at www.buildingrating.gov.au/commercial.

Energy Efficiency Guidance

1.0 BASE BUILDING

Building name: XYZ Building	NABERS Energy rating: 4 stars	Occupancy hours per week: 50
	Expires: 30 September 2011	
Building address: 101 Something Street SYDNEY NSW 2000	Net lettable area: 12,800 m ²	Number of storeys: 6

Top 5 or 10 Opportunities to Improve the Energy Efficiency of the Base Building

1.1 Opportunities to improve energy efficiency

The base building energy use includes air-conditioning use plus a variety of other services, such as tenant-only car parks, domestic hot water, lifts and exterior lighting.

This section provides a summary of the opportunities to improve the energy efficiency of the XYZ Building. The energy efficiency opportunities are measured in potential star improvements and given a difficulty rating of high, medium or low. The degree of difficulty includes the capital cost and operational impact of implementing the change.

The key opportunities identified to improve the energy efficiency of this building are:

- Air-conditioning hours of use
- Simple air-conditioning control improvements

Table 1: Opportunities to improve the energy efficiency of air-conditioning systems (indicative only)

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
<u>Seek expert advice</u> Engage experts to review the central chiller plant to identify energy efficiency improvements to control the chilled water (and condensing water if applicable) temperature. In cooler climates, a seasonal or outdoor temperature based lockout may also be worth consideration.	0.9 stars	Low		
<u>Management</u> Improve in-house expertise and reporting. Implement a regular and detailed programme of planned operational control checks and maintenance. Ensure filters and fan coils are checked for blockages and restrictions and regularly cleaned.	1.3 stars	Medium		

<p><u>Monitor HVAC</u> Introduce a system of regular checks of Heating, Ventilation and Air Conditioning (HVAC) time and temperature settings and provisions to prevent unauthorised adjustment.</p>	0.6 stars	Low		
<p><u>Timer Controls</u> Install timer controls to energy consuming plant and equipment and adjust to suit current building occupancy</p>	0.5 stars	Low		
<p><u>Optimum start control</u> Install an optimum start control on the air-conditioning system which predicts, each day, the latest possible time the air-conditioning can be turned on while still bringing the space to temperature in time for the first occupant. Exact savings are dependent on the building, climate and air-conditioning system involved.</p>	0.4 stars	Low		
<p><u>Carbon Monoxide Sensors</u> Install carbon monoxide sensors in car parks which control the fans, either on variable speed drives or by switching the fans on and off, so that the fans only operate when needed. Alternatively, operate the fans on a time clock, or on run-on timers initiated by doors opening into the car park.</p>	0.4 stars	Low		
<p><u>Reduce hours of servicing</u> Review the hours of servicing requirements with tenants to identify any hours of operation that can be reduced without impacting on tenant satisfaction. It is important to keep a careful watch on hours of servicing, as changing tenant requirements mean that timetables can rapidly become out of date.</p>	0.3 stars	Low		
<p><u>After Hours Switching</u> The best way of doing this is to provide adequate after-hours air-conditioning switching to enable the system to be readily re-energised outside of normal hours.</p>	0.3 stars	Low		
<p><u>Zone Controls</u> Install zone controls to reduce over and under heating where structure, orientation, occupation or emitters have different characteristics</p>	0.2 stars	Low		
<p><u>Weather Compensator Controls</u> Install weather compensator controls on heating and cooling systems</p>	0.2 stars	Low		

Table 2: Opportunities to improve the energy efficiency of lighting

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
<u>Management</u> Implement a programme of planned lighting systems maintenance to maintain effectiveness and energy efficiency	1.0 stars	Low		
Manage when car park lighting is operational by installing a time clock, occupancy sensor control, or timer that switches on the lights when the door openings	0.3 stars	Low		

Table 3: Opportunities to improve the energy efficiency of building envelope (limited list of examples only)

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
<u>External Shading</u> Shading can be an extremely effective method of improving occupant comfort and increasing energy efficiency in a building. Shading of north facing windows can significantly reduce solar gains. Investigate the possibility of installing small horizontal shades that cut out much of the worst of the sun in the middle of the day. Shading of west facing windows can significantly reduce solar gains. However, effective shading for this aspect required relatively heavy, vertical shading devices, which may be difficult to install.	1.5 stars	Medium - High		
<u>Internal Shading</u> Shading can be an extremely effective method of improving occupant comfort and increasing energy efficiency in a building	0.5 stars	Low - Medium		
<u>Energy Performance Modelling</u> Engage a qualified individual to undertake computer simulation of the building performance to identify the potential improvements to glass type and the size and position of shading devices.	1.3 stars	Medium		
<u>Glazing</u> Modern specialist glazings can provide a major boost to the efficiency and comfort of a building, either with or without shading.	1.5 stars	High		
<u>Roof Colour</u> Light colour roves which reflect heat can reduce heat gain	0.2 stars	Medium		

<u>Building insulation</u> Review the building insulation and check with tenants on the top floor whether they have problems with overheating in summer. If so, there is a good chance this can be significantly improved by adding roof insulation. Even though the energy savings may be small, the improvement in productivity will provide an ample payback.	0.2 stars	Medium		
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Table 4: Opportunities to improve the energy efficiency of the hot water systems

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
<u>Testing</u> Regularly test and adjust boiler plant to improve efficiency	0.5 stars	Low		
<u>Boiler Sizing</u> Review the size of the boiler for the load - boiler efficiency falls sharply at low load, particularly below 25% of full load.	0.6 stars	Medium		
<u>Technology</u> Upgrade to a modulating boilers which operate at a reduced power level to manage the load and are therefore more efficient.	1.0 star	High		
<u>Controls</u> Investigate the practicality of installing a seasonal or outdoor temperature-based lock-out of boiler operation.	0.2 stars	Low		

Table 5: Opportunities to improve the energy efficiency of the base building's office equipment

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
Enable power save settings and power down management on computers and associated equipment.	0.5 stars	Low		

2.0 TENANCY

Building name: XYZ Building	NABERS Energy lighting rating: 4 stars	Number of storeys: 1
	Expires: 30 September 2011	
Building address: 101 Something Street SYDNEY NSW 2000	Net lettable area: 2,086 m ²	Location of tenancy: Level 3 east

2.1 Opportunities to Improve the Energy Efficiency of the Tenancy

The energy use covered within tenancy light and power includes lighting, computers equipment and all other office equipment. It may also include any supplementary air-conditioning installed by the building occupants, plus miscellaneous plug loads such as personal heaters, fans and the like.

Further Information on the tenancy's potential to achieve bad/average/good tenancy ratings or other useful information to interpret the lighting rating?

Top 5 Opportunities to Improve the Energy Efficiency of the Tenancy Lighting -

Table 6: Opportunities to improve the energy efficiency of tenant light and power

OPPORTUNITY	STAR IMPROVEMENT	DEGREE OF DIFFICULTY	PAY BACK PERIOD	CAPITAL COST/OTHER
<p><u>Light Power Density</u> Lighting power density: This is the total power use per metre squared when all the lights are on. It represents the combined efficiency of the lamps, the fittings and the overall lighting design and layout. The lighting density of this tenancy is 13 W/m². It is recommended that the lighting be upgraded to obtain significant savings in lighting power density, targeting latest T5 lighting technology, reducing power density to 8W/m².</p>	0.5 stars	Medium		
<p><u>Lighting hours of use</u> This is the number of hours the lights run for. It is determined primarily by how and when the lights are turned off at the end of the day. It is also affected by how the lights are used during the day. It is recommended that movement/occupancy sensors be installed in meeting rooms and automatic timers for after hours switch off.</p>	0.2 stars	Low		

3.0 RESOURCES

List of Government resources available

4.0 IMPLEMENTING RECOMMENDATIONS

Report has been completed by an accredited assessor etc...

What the rating scale means with regard to payback times etc...

5.0 LEGAL DISCLAIMER

The advice provided in this report is intended for information only, etc...

6.0 CONTACT

How to get in touch with the scheme administrators