5 star rating

green star
environmental rating system for buildings
Office Design v2

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88 GEORGE

GREEN BUILDING COUNCIL AUSTRALIA OVERVIEW

The Green Building Council of Australia's mission is to define and develop a sustainable property industry in Australia and to drive the adoption of green building practices through market-based solutions.

The Council's objective is to promote sustainable development and the transition of the property industry to implementing green building programs, technologies, design practice and operations. To do this, it advances and promotes the creation of a green building rating tool, economic incentives, government initiatives and programs, new technologies and industry knowledge.

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GENERAL PROJECT DESCRIPTION

The State heritage-listed building at 88 George is made up of two interconnected warehouses. Number 88 George Street was built in 1886 and number 86 in 1912, and both have a close association to the mercantile activities of The Rocks and in particular the Bushels Tea Company.

Sydney Harbour Foreshore Authority began a long-term project in 2007 to preserve and enhance 88 George as part of a five-year revitalisation program in The Rocks. The project involves progressively refurbishing the heritage building's commercial office and retail space, upgrading the fire protection and other services, improving disabled access, and creating a new public outdoor space.

Once completed, the project will deliver approximately 2,200 square metres of commercial office and retail space over six levels. All office levels will enjoy excellent natural light and harbour views to the north and east, incorporating the Sydney Opera House and the northern CBD skyline.

The Foreshore Authority set out to make 88 George Street Australia's most sustainable heritage-listed building by combining excellence in green building design with an innovative approach to air conditioning using a future district cooling system.

In December 2007, 88 George became the first State heritage listed building to achieve an Australian excellence rating or 5 Star Green Star Office Design rating, setting a new benchmark for heritage refurbishments by both government and the private sector.

88 GEORGE

Address:
86-88 George Street, The Rocks

Owners and project managers:
Sydney Harbour Foreshore Authority

Project Architect:
Terroir

Mechanical and Electrical Engineer:
Steensen Varming

Building Contractor:
Hooker Cockram

Heritage Architect:
Design 5

Quantity Surveyor:
Chris Bylett and Associates

Green Star Consultant:
Steensen Varming and Foreshore Authority personnel

Hydraulic Engineer:
Warren Smith and Partners

Structural Engineer:
Simpson Design Associates

Fire Engineer:
Trevor Howse

DDA Consultant:
Access Australia

Leasing:
Sydney Harbour Foreshore Authority

88 GEORGE

MANAGEMENT

Sustainable project management used during the refurbishment of 88 George included:

- using a Green Star accredited professional throughout the project
- tuning the heating, ventilation and cooling systems to improve their energy performance
- developing a building users' guide to give tenants relevant information on how to most effectively use the water, energy, waste, transport and other sustainable components of the building.

INDOOR ENVIRONMENTAL QUALITY

- The air conditioning system provides ventilation levels that are 50 per cent higher than the Australian standard and will provide tenants with a very comfortable working environment.
- The thermal mass of the existing sandstone walls and floor help stabilise internal temperatures.
- Maintaining functional windows to allow tenants to turn off the air conditioning and take advantage of ocean air flow and external air conditions.
- Large external windows on most facades allow tenants to enjoy high levels of daylight.
- High quality and efficient lighting to balance tenant comfort and energy use.
- More than 60 per cent of office space has an external view with no point on each floor more than 12 metres from a window.
- Use of insulation and equipment to reduce internal noise levels and improve occupant comfort.
- Low volatile organic compound (VOC) paints, adhesives and sealants and products with low or no formaldehyde have been used in construction to reduce internal air pollutants and eliminate 'sick building' syndrome.
- Polished timber and natural flooring in common areas to promote occupant well being and health.
- Air exhaust risers into every tenancy floor help eliminate indoor air pollutants created by activities like photocopying and printing.

ENERGY

Energy consumption will also be minimised by:

- installing an innovative approach to air conditioning using a future district cooling system which will deliver energy savings of up to 40 per cent and prevent approximately 136,000 kilograms of carbon dioxide entering the earth's atmosphere per annum
- installing sub-metering on every floor to allow tenants to better manage their own energy use
- installing lighting zones of less than 100 square metres on every floor with easily accessible and identified switches to help tenants reduce their energy consumption.

TRANSPORT

- Fewer parking spaces have been installed to encourage tenants to travel to and from work by cycling, walking or using public transport located nearby
- Cycling facilities for up to 12 bicycles, as well as accessible showers, change facilities, secure storage and lockers, have been installed.
- A number of parking spaces are designated for small cars only.

WATER

88 George will reduce the amount of potable water usually consumed by a commercial office building of this size and nature by up to 85 per cent by:

- using the harbour to 'reject' heat from the building's heating, ventilating and air conditioning system (HVAC) to replace cooling towers, saving an estimated 3.8 million litres of water each year
- installing high efficiency dual flush toilets and 6 Star tap and sink fittings to allow tenants to minimise water use
- water sub-metering to allow tenants to better manage their own water consumption.

88 GEORGE

MATERIALS

- A dedicated recycling waste storage area has been installed for use by all offices in the building.
- The building's original heritage fixtures, including its façade and structure, were conserved to reduce waste.
- Timber used during construction and installed in the building (such as plywood for concrete forming, doors, feature timber surfaces and cabinetry) is either recycled or comes from sources certified by the Forest Stewardship Council (FSC).
- Poly Vinyl Chloride (PVC) alternatives have been used to replace 60 per cent of the PVC that would normally be installed in such a building.

EMISSIONS

The refurbishment of 88 George has been designed to significantly reduce the emissions from the building into the environment by:

- using non-ozone depleting refrigerants in the building's cooling systems
- using insulation products that were made without ozone depleting gases in their manufacture or composition
- using the harbour to 'reject' heat from the building's heating, ventilating and air conditioning system (HVAC) to replace cooling towers and reduce water flow to the sewer
- minimising façade lighting and positioning it to prevent light spilling to neighbouring properties and the surrounding area.

INNOVATION

The building will be connected to an innovative district cooling system planned for The Rocks that will:

- eliminate the risk of legionella by allowing the cooling towers in the building to be removed
- significantly reduce the amount of water used for air conditioning
- eliminate noise from the existing cooling tower
- remove the need for the use of biocides to clean the existing air conditioning system
- improve the aesthetics of The Rocks by removing clutter on the building's rooftop.

OVERALL GREEN STAR BUILDING PERFORMACE