5 star rating

green star
environmental rating system for buildings
Office Design v2

*green building council australia

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MFB BURNLEY

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 MFB - Burnley Complex is the new Community Safety and Training Facility of the Metropolitan Fire Brigade on Burnley Street in Richmond, Victoria. It demonstrates the strong commitment of the Metropolitan Fire Brigade and all involved Designers, Engineers and Consultants to Environmental Sustainable Developments (ESD).

The main incentives throughout the entire duration of the project were the development of integrated and holistic design solutions and the implementation of low- and high-tech environmental strategies.

The owner-occupied Burnley Complex comprises of four buildings - A, B, C and D on a 1.87 hectare site, arranged around a spacious training yard close to landscaped car parking areas.

Building A - the administration and office building has achieved a certified 5 Star Green Star Rating under Green Star - Office Design v2 in September 2006.

The three storey mixed-mode building with integrated fitout incorporates best practice energy efficient and sustainable design principles. These include:

- Optimization of orientation and layout and provision of highly insulated facades for thermal performance
- Simulated 5 Star ABGR rating
- Integration of atria for natural daylight penetration and external views
- Activation of the thermal mass through hollow core concrete floor planks
- Holistic stormwater management system
- Selection of environmentally sustainable materials.

HUME CITY COUNCIL OFFICE BUILDING

Address:
450 Burnley Street, Richmond, VIC 3121

Owner:
Metropolitan Fire and Emergency Services Board

Design:
Spowers (Architect and ESD Leader), Connell Wagner (Services Engineer), Arup (Structural Engineer), Rush/Wright & Associates (Landscape Architect), The Planning Group (Town Planner), Richard Heggie & Associates (Acoustic Engineer), Currie & Brown (Quantity Surveyor), Philip Chun & Associates (Building Surveyor), SKM (Security Consultant), Architecture & Access (Access Consultant), David Caple & Associates (Occupational Health & Safety Consultant), SBE (Environmental Consultant)

Construction:
Abigroup Contractors Pty Ltd

NLA - Building A:
3,600 m^2

NLA – Burnley Complex Total:
6,700 m^2

MFB BURNLEY COMPLEX

MANAGEMENT

- 100% score in this category
- Green Star Accredited Professionals engaged as part of project team throughout entire duration of project
- Comprehensive pre-commissioning, commissioning and quality monitoring undertaken by contractor
- Extended 18 months commissioning and building tuning period provided, with minimum quarterly reviews and a final re-commissioning after 18 months
- Independent commissioning agent appointed to monitor and verify commissioning
- Plain English building user's guide provided to ensure intended environmental performance will be achieved
- Comprehensive environmental management plan implemented by contractor
- Comprehensive waste management plan implemented by contractor to ensure 80% construction waste is diverted from landfill

INDOOR ENVIRONMENTAL QUALITY

- CO2 monitoring systems installed to facilitate continuous monitoring and adjustment of outside air ventilation rates
- Fluorescent luminaries with high frequency ballast installed to avoid light flicker
- External views provided for 60% of NLA
- Assessment of thermal comfort levels undertaken to optimise the work environment
- Low noise levels of building services
- Low volatile organic compound (VOC) materials installed such as carpets, paints, adhesives and sealants
- Low level formaldehyde composite wood products installed
- Openable windows for user control provided
- Exposed concrete ceilings to provide radiant cooling

ENERGY

- 5 Star ABGR rating – minimised operational energy consumption and greenhouse gas emissions
- Sub-metering of substantive energy uses and all floors provided to facilitate energy monitoring
- Individual light switching of all enclosed spaces provided
- Low energy T5 light fittings installed
- Hollow core concrete floor planks utilised for air circulation to activate thermal mass of concrete
- Mixed Mode Hybrid HVAC System
- Night time cooling
- Modern glass technologies implemented i.e. double glazing, solar control glass coatings and printed glass panes to provide shading
- Self-shading north facing atria through outward tilted glass
- Optimized wall-window ratio for all facades to reduce heat gain

WATER:

- Water collection systems, appliances and fittings selected which reduce the potable water consumption
- Water meters installed for all major water users to monitor and manage water consumption
- All water meters connected to the building management system to provide a leak detection system
- 100% of water required for landscape irrigation sourced from rain water collection to reduce potable water consumption
- No cooling towers or evaporative cooling installed to reduce the demand for potable water due to water based cooling systems
- Potable water required for maintenance drain downs and fire protection system tests is re-used on site
- 750.000 litres underground water storage tank
- 100% of stormwater accumulating on entire site collected and re-used
- Waterless urinals, minimum AAA rated fittings throughout

MFB BURNLEY COMPLEX

MATERIALS:
- Dedicated waste storage areas provided to facilitate recycling and to reduce waste going to landfill
- Fitout fully integrated with base building construction
- Concrete with significant recycled content used
- 60% of steel with post-consumer recycled content greater than 50% by mass installed

TRANSPORT:
- 100% Score in this Category
- Minimum quantity of car parking spaces provided to promote utilisation of alternative modes of transportation
- 25% small car parking spaces provided to support use of smaller, more fuel efficient cars
- Weather protected cycling facilities for building staff and visitors including showers and change rooms provided
- Good access to public transport with frequent services

LAND USE AND ECOLOGY:
- Site had little ecological value prior to being developed
- Site has been previously built on – land has been re-used
- Contaminated land remediated and reclaimed
- Development had minimal ecological impact on site

EMISSIONS:
- No ozone depleting refrigerants used
- 100% of stormwater run-off from buildings, soft and hard surfaces will be collected and re-used on site to reduce pollution of natural water courses
- Water flow to sewerage system reduced.
- Dispersion of external light into the night sky and onto neighbouring properties eliminated
- No cooling towers installed to eliminate the risk of Legionnaire's disease

INNOVATION:
- Integrated stormwater management system for entire site implemented to collect and recycle 100% of stormwater on site for fire fighting training

OVERALL GREEN STAR BUILDING PERFORMACE