

# The Frank Fenner Building

The Frank Fenner Building was opened at the end of 2011 and hosts the Fenner School of Environment and Society (FSES), a school dedicated to integrated environmental research and training. In keeping with this charter, the building was designed and built to the highest environmental standards of sustainability and efficiency.

It's a three storey building located on the corner of Linnaeus Way and Daley Road on the Australian National University campus. The floor space is made up of a combination of individual, shared and open plan office space, as well as a large seminar room and an outdoor courtyard/teaching space.

The building has achieved a 6 Green Star rating for 'design'. This puts the building into the top 25% in Australia in terms of its environmental performance.

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<http://fennerschool.anu.edu.au/>



Some of the building's features that will contribute to its 6 star rating:

- **Less waste during construction:** A comprehensive waste management plan which saw over 80% of all the demolition and construction waste recycled during the construction phase.
- **Minimal off-gassing interiors:** All building materials and products (such as carpet, paints, sealants, etc.) have a low 'volatile organic compound' to minimise off-gassing of pollutants into office space.
- **Clever lighting installation:** A highly energy efficient lighting system reducing the amount of cabling and the use of accessories during construction.
- **Efficient thermal exterior:** Use of building fabric with insulation to minimise heat loss in winter and heat gain in summer.
- **Intelligent solar design:** Extensive use of external shading, double glazing and high performance glass to minimise direct solar gain.
- **Ventilation with external air:** Increasing the amount of outside air supplied to the building by 150% above the current Australian standard.
- **Efficient space heating:** Temperature control is provided by a hybrid air conditioning system which uses a combination of natural ventilation and mechanical cooling/heating to provide a comfortable environment for the users.
- **Offices with openable windows:** Each office operates on a traffic light system advising occupants when to close windows (during building heating or cooling) and when windows can be open.
- **Low carbon emissions:** The building has emissions in the vicinity of 43.43 kgCO<sub>2</sub> per square metre per annum compared to 110 kgCO<sub>2</sub> for a building that meets the minimum Green Star standard.
- **Extensive PV arrays:** A photovoltaic system consisting of 142x240W solar panels is installed on the roof generating enough electricity each year to make the building close to carbon zero as possible. At low usage times the excess is fed back into the grid.
- **Automatic lighting cutoffs:** Motion sensors and daylight dimming reduces the lighting energy consumption.
- **Water recycled:** A blackwater recycling system feeding all waste water into the system and drawing back recycled water for toilet and urinal flushing.
- **Stormwater harvested:** Two large rainwater tanks, which collect water from the building's roof, are used for landscape irrigation.
- **On site stormwater retention:** A wetland area at the rear of the building increases the biodiversity of the location as well as retaining excess stormwater from the site.
- **Efficient plumbing:** Highly efficient taps, showers and toilets reduce the consumption of potable water – estimated saving is 530,000 litres per year.
- **Change facilities:** Showers, lockers and change room facilities on every floor (for those cycling to work).
- **In situ energy monitoring:** An electronic screen, in the foyer, displays information on the energy and water use as well as the amount of electricity generated by the photovoltaic system.
- **Use of natural light:** The building was designed to maximise natural light and external views to provide occupants with a visual connection to the outside environment.
- **Integrated into building precinct:** the Fenner Building is connected to the ANU Central Plant for heating and cooling thereby achieving greater economies of scale.

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Photo: David Salt





# Six things about the Frank Fenner Building

The Frank Fenner Building has achieved a 6 Green Star rating for both design and build.

Here are six things worth remembering about the building. Anyone lucky enough to work in the building or interested in environment-friendly construction might consider sharing these facts around in the interests of promoting the advantages of smart and sustainable design.

## 1. Energy

A photovoltaic system installed on the roof and generates up to 43,800 kWh of electricity each year making the building close to carbon zero as possible.

## 2. Light

Motion sensors and daylight dimming reduces the lighting energy consumption.

## 3. Water

A blackwater recycling system captures all waste water and recycled water is used for toilet and urinal flushing.

## 4. Air

The amount of outside air supplied to the building is 150% above the current Australian standard.

## 5. Heat

Temperature control is provided by a hybrid air conditioning system which uses a combination of natural ventilation and mechanical cooling/heating to provide a comfortable environment for the users.

## 6. Emissions

The building has carbon emissions in the vicinity of 43.43 kgCO<sub>2</sub> per square metre per annum compared to 110 kgCO<sub>2</sub> for a building that meets the minimum Green Star standard.



Photo: David Salt



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