



Environmental Sustainability – An Overview

The fundamental vision of the Royal Agricultural Society is *“To encourage the sustainable development of agriculture by holding events and competitions that support agricultural excellence and innovation”*. Achieving this vision of sustainability is a major goal, both in terms of growing awareness and importance of sustainable agriculture and in the managing of the Showground’s environmental footprint all year.

CONSTRUCTION: ENVIRONMENTAL SUSTAINABLE DEVELOPMENT

The Government’s promotion of Environmental Sustainable Development (ESD) during construction of Sydney Showground for the Sydney 2000 Olympic Games and its subsequent use demonstrates that commercial buildings can continue to minimise their impact on the environment including use of resources and greenhouse gas emissions. The RAS continues that legacy in its operation and stewardship of Sydney Showground.

The Showground’s environmental sustainable design and attributes include:

- Maximized use of recycled and reused materials.
- A "displacement" or "chilled beam" air-conditioning system in the Dome meaning better air quality and lower energy requirements.
- Natural ventilation systems in other pavilions that allow cool air in through inlet louvres at ground level and release warmed air through roof outlets.
- Air conditioning plant, where used, is air-cooled reducing the use of water, use of chemicals and the risk of Legionella.
- Environmentally friendly refrigerants are used in the major AC plant.
- Passive fire safety smoke extraction uses the natural ventilation design instead of mechanical systems.
- Exhibition Halls have roof and wall insulation and sun shields over north, west and east facing windows.
- Fabric funnels suspended from the roof in the animal pavilions (converted to the Main Press Centre during the Games) promote rapid replenishment of air.
- Day lighting has been maximised.
- All artificial lighting is energy efficient with reflectors to reduce the number of lights.
- Daylight and movement sensors are used.
- One particularly innovative feature is the north facing skylights at the horse pavilions. These let in more light but due to glare problems are rarely installed. In the horse pavilions this problem is overcome by the use of light shelves (reflectors) which let in light but avoid glare.
- Natural gas is used for kitchens and hot water in buildings with high demand.
- The Showground uses 20% less energy using these innovative natural ventilation and natural lighting systems, estimated to save 1750 tonnes of CO₂ per year.



- Recycled, sustainably managed plantation timber has been used in pavilion roof structures, louvres and windows, including laminated plantation slash and radiata pine used in the Dome and the ironbark, blue gum, blackbutt and tallow-wood in the Clydesdale pavilion.
- Use of PVC alternatives were used wherever possible including the exhibition hall sun-shade 'sails' on the northern face of the building which have a Teflon glass coating, and polyethylene used for underground water mains.
- 94.67 % of construction waste at the Sydney Showground was recycled.
- All materials for use in construction underwent a life-cycle analysis including Eco-rating. This assesses the environmental impact of a material over its entire life, from manufacture through use to disposal. Materials with the least impact were chosen.
- The energy design of the agricultural pavilions reduced capital costs and projects energy savings of 23.5 GJ/week.
- Public spaces have been orientated to maximise sunlight and minimise the use of artificial lighting.
- Water efficient appliances are used in all buildings*.
- Existing Fig trees were recovered and transplanted during construction.
- 1,500 trees were planted including Eucalypts and other diverse Australian trees.
- The major agricultural pavilions were awarded the 1999 Royal Australian Institute of Architects Energy Efficient Design and Ecologically Sustainable Development award.
- The Showground is easily accessed by public transport with Olympic Park Station adjacent to the primary venues and is also highly serviced bus and ferry (the RAS promotes the use of public transport for all events).

*85%-90%% of all water used on-site is recycled water from the Sydney Olympic Park Water Reclamation and Management Scheme system (WRAMS) dual water system. Most stormwater is 'harvested' and reused, reducing the demand for potable water from Sydney's main water supply and costs. The reclaimed water is used for toilet flushing and irrigation as 'grey' water. Environmental harm is minimised by the use of gross pollutant traps and effective practices in cleaning, horticulture, irrigation, dust control and maintenance.