

Sustainability Features Overview

for Loving Hearts Childcare

2 Piggabeen Road Currumbin Valley, QLD. 4223

As at 1 December 2018

Loving Hearts has been designed and constructed to set a new benchmark in sustainable childcare centre design, construction and operation for Australia.

It is arguably **Australia's most sustainable childcare centre**, with over eco-friendly 42 features, many never found in a childcare centre before. The centre's sustainability credentials are listed below.



Loving Hearts also achieved Australia's first UDIA EnviroDevelopment rating for a childcare centre, demonstrating its industry leading credentials. Its features also add to the sustainable education experiences available for the children at the centre.



The centre's builder also won the Queensland State Master Builders award for **Excellence in Energy Efficiency and Environmental Management** 2018, and the local Gold Coast award earlier in the year.

The Loving Hearts centre sets a new benchmark for childcare centres, in an industry sector which has been left behind over the years and suffers greatly from poor design and little time, knowledge or resource to make improvements.



For more information on the sustainability features or to request a tour, please contact the centre's sustainability consultant, Ben O'Callaghan from Ecomplish or visit the website <http://lovingheartschildcare.com.au/>

Vision



The owner of the centre set a highly commendable and self-imposed sustainability vision from the start of the project:

“To demonstrate nation-leading Childcare Centre sustainable design and operations for the benefit of the whole community and future generations”

The Vision goes well beyond all minimum levels of compliance required by government legislation and will significantly exceed all energy and water efficiency benchmarks for centres of a similar size according to the [Ecomplish Sustainability](#) who were employed to manage the centre’s sustainable design.

The commendable vision was set to:

- a. Demonstrate the benefits of sustainable childcare centre design to the rest of Australian childcare centre owners and operators i.e. become a case study and example of best practice design and operation for others to repeat and learn from.
- b. Reduce the impact on the environment of the materials, construction and on-going utility requirements of the centre, for the benefit of the centre, the wider community.
- c. Significantly reduce the greenhouse gas impacts and toxicity, compared to standard childcare centre buildings, which typically perform poorly because for their sub-standard design and capital-cost focused designs.
- d. Benefit the children, parents and staff who would use the centre, by ensuring higher air quality through the use of safer materials, enhanced daylight and reduced costs for families.



Exceptional sustainable design can only result from a holistic approach to design and a careful combination of smart sustainability initiatives. Loving Heart’s remarkable sustainability credentials, to list just a few are listed below.

Sustainable Building Features

Detailed Feature List

Design

- Building is orientated to the north to maximise passive solar design opportunities and increase internal comfort.
- Daylight modelling and analysis to optimise the amount of sunlight coming into each room.
- Extra windows to allow more daylight into rooms which will also reduce the need for electrical lighting.
- Extra shading so harsh sunlight cannot heat the centre during summer months.
- Additional acoustic insulation to minimise sound was installed around the nursery rooms.
- High efficiency lighting including the use of LED technology for internal lights
- High performance LED street luminaires using just 14 watts (typically 80W mercury vapour).
- 54,000 litres of rain water storage tanks to collect water from the roof. The rain water used to flush the centre's toilets to save on water.
- Water efficient toilets, showerhead and taps.
- Only cold-water taps for children bathroom basins to reduce hot water use and hence power.
- Roofs orientated to the North and pitched steeper to maximise solar energy panel efficiency.
- A very light-coloured roof (Colorbond Surfemist) and walls to reflect the heat and reduce heat gain, reducing cooling (energy) costs.
- More light weight material on the exposed exterior, instead of brick, to reduce heat gain
- Sliding windows instead of louvres to reduce noise entering the baby's sleeping room.
- More than 70% of all construction waste was recycled.
- Eco-Concrete was used for the slab and carpark road. This product uses up to 30% of recycled content which replaces high embodied energy Portland cement, reducing its overall embodied energy considerably.
- The white eco-concrete road will make the local area cooler by reducing heat gain and reflecting heat, compared to a traditional black bitumen car park,
- A dedicated sustainability expert was employed before the start of the planning phase to ensure sustainability, toxicity, operational costs and environmental impacts were all considered and at every stage.
- Paints and renders with no or low Volatile Organic Compounds (VOC) levels was used to ensure the children and local environment are not impacted by emissions.
- An independent local Childcare Needs Assessment was conducted to ensure the centre would be used by the local community for decades to come. Without the centre, a shortfall of 60 to 120 places would be left, leaving local parents without childcare services.



Construction

- Low Volatile Organic Compound (VOC) flooring to reduce toxicity from the world's most admired and sustainable flooring company, [Interface](#).
- Best practice stormwater control measures were used.
- High efficiency air conditioning systems for the sleeping rooms etc with Economy Modes. These systems consume about 40% less energy compared to the average AC systems in other childcare centres.
- Outdoor playground equipment made from timber on the site.
- Children's timber furniture made from the world's highest sustainability standard timber which is Forest Stewardship Council (FSC) certified. The furniture is also
 - 100% compostable at the end of its life-cycle
 - uses less embodied energy compared to steel and plastic alternatives
 - uses no toxins or harmful environmental pollutants during its manufacturing.
 - Is designed to last for well over 10 years before requiring any maintenance.
- A pressure tank on the rainwater pump to reduce pump energy and extend its lifetime.
- Planting of over 500 trees and shrubs on site which are also local native species to increase biodiversity and support native fauna. Most of the plants are also drought tolerant, meaning they won't need any constant watering after establishment.



Operations

- The building is predicted to generate at least 78% fewer greenhouse gas emissions, for operational energy, compared to other similar buildings due to its energy efficiency and solar array.
- 15 kW Solar photovoltaic energy array which will produce over 24,000kWh of renewable energy each year, significantly reducing coal fired power electricity consumption and greenhouse gases.
- Dedicate space for batteries in the future, which will allow the centre store energy and send it back to the grid when the local grid is short of power.
- Use of several waste recycling streams including paper, plastics, glass and on-site composting of organic kitchen food waste.



Sustainability Features Overview - Loving Hearts Childcare Centre. Gold Coast, Queensland, Australia

- Vegetable garden from which on-site meals are made, that the children help to manage and learn from.
- 100% of waste water is collected and treated on-site using an advanced septic system, bio-accelerator and geotextile canvas pipe. The system produces aerobic and anaerobic conditions which treat the water naturally without chemicals and with very little electricity required.
- Timers on the hot water circuit and recirculating pump so the ring main can be optimised to save water and reduce the amount of energy required to heat water. The hot water system is set to operate during daylight hours so it is powered by the sun via the solar energy array.
- Covered outdoor area to dry clothes and reduce clothes dryer energy consumption.
- Refrigerators with high energy star ratings to reduce electricity consumption.
- Dishwashers and washing machines with high water and energy star ratings to reduce electricity consumption.
- Rain water tank flow meter to track and minimise water use.
- A community bus, to assist children and families.
- PeakSmart technology will reduce the electrical load on the local network at peak times to reduce infrastructure costs to the local community. This technology allows the retailer to remotely adjust the air conditioning systems power use during times of network stress and share energy across the suburb.
- A Smart Meter enables the centre’s facility manager to monitor (and then optimise) the centre’s electricity use, every 30 minutes if required.
- The centre’s owner employs a sustainability professional (Ecomplish) to monitor and optimise the centre’s energy and water performance and conduct sustainability training for staff.

