

## FAWKNER LIBRARY

MORELAND LEADING THE WAY IN ENERGY EFFICIENCY



Fawkner Library was opened in 1968 and has had several upgrades since 2003. The Library is part of the Fawkner Civic and Community Hub and which also includes the Leisure Centre, Senior Citizens Centre, Neighbourhood House and Maternal & Child Health Centre.



### KEY ACTIONS

- Lighting energy load reduced by 64%
- R3.5 ceiling insulation installed
- Inefficient HVAC plant replaced



The centre is well utilised by the local community and popular with families from a diverse range of cultures and backgrounds with almost 65,000 visits recorded from 2012-2013.

Energy efficiency upgrades have improved the comfort levels of patrons (particularly during summer and winter), delivered improved lighting levels, and reduced Council's running costs and greenhouse gas emissions.

### ENERGY EFFICIENCY UPGRADES

**LIGHTING** throughout the library was upgraded in March 2011. The library originally had numerous old T8 fluorescent tubes which we replaced with modern T5 tubes. We also installed LED down lights, 5W LED exit lights, and efficient security lights as well as motion sensors to switch lights off when they are not needed. Overall the lighting load was reduced from 7kW to 2.5kW, a reduction of 64%.

The original 1960s building had no ceiling **INSULATION** so we installed R3.5 polyester batts lining the ceiling and reflective foil bubble wrap under the roof. This greatly improved comfort levels and reduced energy consumption from heating and cooling.

In April 2013 the old gas fired heating and cooling plant was replaced with a 55kW reverse cycle electric **AIR CONDITIONING** system.

The new system is highly efficient, with a full economy cycle and direct digital control system. This upgrade is part of the Fawkner Precinct **COGENERATION** project which will see electricity generated next door at the Leisure Centre eventually supplying the Library as well.

### THE RESULTS

The combined savings from these upgrades are estimated to be 45 tonnes of greenhouse gas emissions (CO<sub>2</sub>e) or \$7,500 in energy costs, which is a saving of over 50%. Billing data showed a drop in electricity consumption from 3,300 kWh in May 2011 to



# CASE STUDY



Before (left) and after (right) showing the improvement with the new fittings. The old T8 fluorescent light fittings remain because the polycarbonate covers act as an isolative barrier and the cost of removing and reinstating the ceiling lining could not be justified. It was easier and simpler just to leave the old fixture where they were and hang new fittings underneath the ceiling.

1,600 kWh in May 2012. This was before the heating and cooling system upgrade.

The library is now more comfortable for occupants with better lighting levels – all while using less energy to operate.

## LESSONS LEARNT

The old cooling system was well installed and designed and still ran well considering its age. Even so, improvements in equipment efficiency over the last decade had rendered it obsolete.

The Library was first built in the late 1960s and had no insulation in the ceiling or walls. This is typical for most buildings predating the introduction of insulation into the Building Code of Australia in the early 1990s. So if your building is older than 1991, it's likely that there is no insulation at all, and energy savings will be very attractive!



Australian Government



Moreland City Council

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