



Green Laboratories – The Reality

Laboratories are often claimed to be energy in-efficient and not at all Green. Umow Lai has been designing Energy efficient laboratories before there were Greenstar tools and similar to rate them. This talk looks at the progression of Green laboratory design within Australia by reviewing case studies of a number of Umow Lai projects. From our overseas study tours we have found that Australia is at the forefront of laboratory design.

For all the case studies we will outline the design solutions with an emphasis on the unique design features and the construction challenges. These buildings typically have good lighting controls, rainwater harvesting and reuse, low water consumption fixtures.

Case studies will include the following:

- John Curtin School of Medical Research
A pre rating scheme building, this building incorporates a number of energy efficiency measures such as a Thermal Labyrinth, Thermal Chimneys and Mixed Mode air-conditioning. (Design commenced for Stage 1 in 2003 and November 2011 saw the completion of Stage 3)
- Monash STRIP 2
Also pre rating schemes this building used high performance plant with Active mass cooling and Under Floor Air Distribution. (Designed in 2005/06, Construction completion 2008)
- University of Adelaide – Ingkarni Wardli – 6 Star Green Star Education v1 design tool
This innovative building uses Under Floor Air Distribution System and In Slab Heating and Cooling with Geothermal Energy Storage and Trigeneration. (Designed in 2008/2009, Construction completion in 2010)
- ANU College of Sciences precinct
This collection of buildings includes the use of Manifoldded fume cupboards. (Designed in 2008/2009, Construction completion of final buildings in 2013)
- CSU – National Life Science Hub (NaLSH)
This is a regional single storey building, achieving a Education V1 5 Star Greenstar Design rating. It uses more conventional air conditioning systems with higher efficient plant. (Designed in 2010, Construction completed in 2012)
- University of Tasmania – Medical Science (MS2)

The First building in Tasmania to achieve a Education V1 5 Star Greenstar Design rating. (Designed in 2010, Construction complete in 2012).

- University of Tasmania – Institute for Marine and Antarctic Studies (IMAS)
The Second building in Tasmania to achieve a Education V1 5 Star Greenstar Design rating, this building uses a closed loop system into the Harbour for heat rejection. (Designed in 2011, Construction due to complete in 2013).