

## University tightens control on degrees

**F**ounded in 1850, the University of Sydney (Australia's first university) has built an international reputation for its outstanding teaching and as a centre of research excellence.

The Heydon Laurence building in the University's Camperdown campus holds various research laboratories, including a constant temperature room dedicated to the testing of insects.

The research focuses on the ecology of terrestrial arthropods, revolving around three central themes.

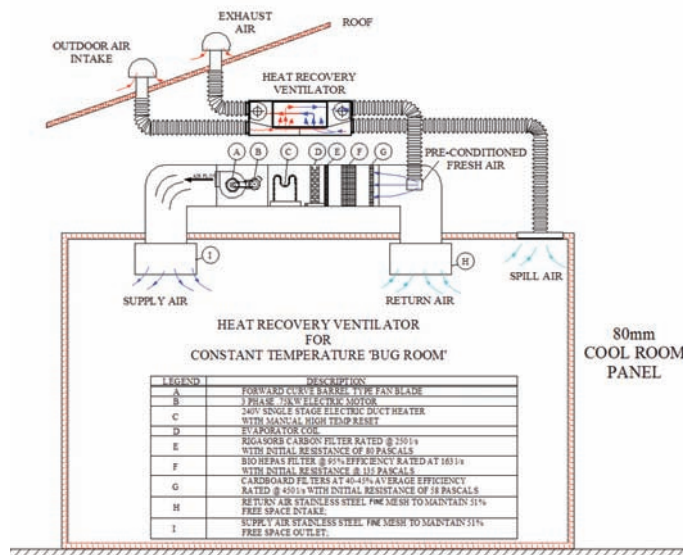
They use experimental and survey-based approaches to investigate these areas of interest; insect-plant interactions, community ecology and conservation biology.

A&D Refrigeration and Air Conditioning was contracted to build three constant temperature rooms "Bug Rooms".

The specified air changes in these rooms due to their unique situation where around 50 per cent outdoor air and the specified room temperature were within the ranges from 4-35°C (1°C).

Whilst the rooms area are quite small, to meet the specifications, the calculated refrigeration system capacity for a conventional system equated to an impractical 80kW, due to the design internal conditions and the high fresh air load.

A & D Refrigeration approached Air Change to provide a "niche" design for this application by utilising Air Change patented heat exchanger technology and the result was a much smaller



refrigeration system to meet the specifications.

This particular facility was installed to house locusts, in particular the African Desert Locust, however permission to import these exotic insects was denied, and so the facility is being used to hold the Australian Plague Locust.

Using the locust as a generic model, studies have been performed monitoring how environmental changes impact the nutritional behaviour of the animal. This model can then be applied to predict plague dynamics.

The design and installation was carried out by Ralph Nahas of A & D Refrigeration who turned to Air Change to help reduce the refrigeration capacity needed to cool the room.

Numerous in factory tests and simulations were performed by A & D before the system was perfected and cho-

sen to be installed into the university laboratory.

The design of the system is based around an Air Change "In Ceiling Energy Recovery Ventilator" coupled with a variable capacity split fan coil/condenser setup.

At only 450mm high, the ventilator was able to fit into the tight space available in this application.

The Air Change unit uses the exhausting air to pre-condition the outdoor air close to room temperature. The Air Change enthalpy heat exchange unit with a high total and sensible effectiveness, allowed for energy savings of around 50% over a conventional system with no energy recovery.

Another benefit of the enthalpy heat exchanger which transfers the latent load, is there is no condensate produced, eliminating the need for external drains.



**ABOVE:** Bit of a buzz . . . The Australian Plague Locust under research in the test facility.  
**LEFT:** Job well done . . . The Air Change energy recovery ventilator and the conventional fan coil unit now fit after capacity savings allowed the whole system to be more compact.

A hot gas bypass system was utilised on the outdoor condenser to vary capacity as required.

Other features of the A & D design included a 3 stage filtering system and sophisticated controls designed to manage room temperature and airflow linked with the flexible capabilities of the condensing unit.

Nahas was impressed with the results.

"Supplying fresh air into cool rooms is a quite a difficult task," he said.

"Together with Air Change, we have developed a system that handles this unique project both effectively and efficiently".

With all parties extremely satisfied with the system, Air Change and A & D Refrigeration are hoping to explore other applications where this system can be employed.

A & D has already supplied the Air Change ventilators into other areas on the university campus.

## Hastie purchases EMAC Services

**H**astie Group Limited recently acquired EMAC Services, an air conditioning maintenance company servicing customers in south-east Queensland and northern New South Wales.

EMAC, which has annual sales of approximately \$11 million and a strong growth profile, is expected to add over \$1 million to the earnings before interest and tax of Hastie's maintenance division and the acquisition will be EPS accretive immediately.

The purchase price is \$5.2 million, of

which \$3.4 million is being paid in cash and \$1.8 million is being paid in new Hastie shares which will be in escrow for one year.

The vendors are the management team who will continue to manage and grow the business.

Hastie managing director Jerry Maycock said the deal had gone according to plans.

"This bolt-on acquisition is in line with our strategy to expand our maintenance division through a mixture of organic growth and quality acquisitions

in selected markets," he said.

"EMAC, while a modest acquisition, will double the size of our maintenance activities in the fast-growing south-east Queensland market, making Hastie the largest dedicated commercial air conditioning maintenance business in the region."

EMAC, established in 1986, has offices in Brisbane, the Gold Coast and northern New South Wales with 72 employees.

It's customer base extends from Queensland's sunshine coast to Lismore NSW and west to Toowoomba.