



Energy pay-off

Green offices that slash absenteeism

Staff productivity is higher in a revolutionary Melbourne block, writes **Sherrill Nixon**

In the wee hours of the morning, as the last pubgoers stagger home and the first clean-up trucks begin their work, the windows of an unusual Melbourne office block silently open.

For up to five hours the night air circulates through the 10-storey building, gradually cooling the wave-shaped concrete ceilings that have absorbed the heat from a day of human and computer activity.

It makes sense – who doesn't open the windows at night to cool down their house after a warm day? – but it is revolutionary for a modern commercial building.

This is Council House 2, the first new building in Australia to receive a six-star Green Star rating for design from the Green Building Council of Australia. Known as CH2, the office for 540 City of Melbourne council staff that opened in August 2006 has become an international benchmark in green buildings.

Only three other Australian buildings have received the six-star rating for design – the refurbished Szecorp Building in South Melbourne, the Catholic Church-owned VS1 office to be built in Adelaide next year and the refurbished Trevor Pearcey House in the ACT. An announcement is imminent about the first Sydney building to receive a six-star rating.

The four six-star buildings are among 41 projects that have already been certified under the Green Star system; a further 480 buildings have applied for a rating.

The executive director of the Green Building Council, Suzie Barnett, says developers, property owners and

commercial tenants are seeing the benefits – to the environment but, as importantly, to their own bottom line – of going green.

While the cost of attaining six-star environmental efficiency is often higher than the construction of a standard building, the ongoing running costs are lower and staff productivity is higher because of lower levels of illness and absenteeism.

"Looking at the energy, gas and water costs, that doesn't keep a CEO awake at night," Ms Barnett said.

"It's the staff costs. It [a green building] is also more attractive to staff, particularly generation Y. They are the children who grew up with the environment, they have been recycling all their lives.

"When they start to question their companies, they want to know what they are doing for the environment."

CH2 cost nearly \$52 million, including \$11.3 million for its sustainability features. The City of Melbourne estimated the design of CH2, particularly the flow of 100 per cent fresh air throughout the building, would increase staff productivity by 4.9 per cent, saving the council about \$1.1 million a year.

But an audit to be released in coming weeks found the benefits have been greater, with productivity increasing by 8-10 per cent, saving more like \$2 million a year. The "payback period" – the time it takes to recoup the additional 20 per cent in building costs for the environmentally efficient measures – will correspondingly be reduced, from the original estimate of 10 years to seven.

There was no attempt to disguise

CH2 as a standard office block – the recycled timber louvres that shade the western facade, moving according to the position of the sun, are an instant giveaway that the building is somehow different.

On the roof, six 3.5 metre-high, yellow wind turbines turn slowly to extract air from the office spaces, and vertical gardens run down the length of the northern facade to reduce glare and improve air quality and the view from inside. Only about 80 per cent of each floor is air-conditioned; there is natural ventilation in the toilets and the lifts and lobby areas have no air-conditioning. An external staircase allows staff to take in more fresh air as they walk between floors.

The office floors are open plan and the lights are set at 150 lux, compared with 350 to 400 lux in a conventional office. While some council staff have requested stronger lighting for their work, the gentler lighting is said to have a calming effect on the behaviour of people – one council manager says he no longer feels as though he is working in a 7-Eleven supermarket.

Not everything has gone according to plan. The roof turbines do not turn as much as hoped, partly because of surrounding buildings that affect the wind flow, and there were teething problems with the blackwater recycling system.

That system, to be come into operation soon, is designed to draw about 100,000 litres of toilet water from the public sewer for recycling for watering plants, flushing toilets and topping up water for city fountains and



other water features. The Lord Mayor of Melbourne, John So, said the council wanted to lead by example when it took the decision to build CH2. The building is now regularly visited by sustainability experts, developers, builders and students from around the world, and has won 12 big awards.

“We wanted to put our environ-

mental credentials into action with a building that was at once innovative, creative, technologically advanced, environmentally sustainable and financially responsible, while setting an example for others to copy,” Cr So said.

□ Two conferences next month will look at sustainable cities and green buildings. The Green Cities 08 con-

ference will be held in Sydney from February 10 to February 13, hosted by the Green Building Council of Australia and the Property Council of Australia. The EcoEDGE 2 conference on green urban design will be held in Melbourne from February 14 to February 16, with speakers including internationally renowned architects.

Council House 2

Healthy technology

- ▶ Five “shower towers” draw air from more than 17 metres above street level. The air flows down the towers and is cooled by evaporation from showers of water. The cooler air is then directed into the building.
- ▶ **Wave concrete ceiling panels create thermal mass to cool the building. In summer, demand on the cooling system is 14 per cent lower.**
- ▶ 100 per cent fresh air is directed into the building through individually controlled floor vents.
- ▶ **Windows are opened at night to purge stale air.**
- ▶ A gas-fired co-generation plant provides about 60 kilowatts of electricity, meeting about 40 per cent of the building’s needs, with lower carbon dioxide emissions.
- ▶ **About 60 per cent of the hot water supply comes from 48 square metres of solar panels.**



Rooftop garden with wind turbines. Photos: Jessica Shapiro

A water mining plant, not yet operational, will recycle about 100,000 litres of toilet water from the public sewer for watering plants, flushing toilets and cooling the building.

New LCD computer monitors consume 77 per cent less energy, while the light fittings consume 65 per cent less energy.



Plants help clean the air.



A shower tower cools air with water



Wave ceiling panel.



The timber louvres shade the western facade of Council House 2 and move according to the position of the sun