

Commercial 'green' buildings measured

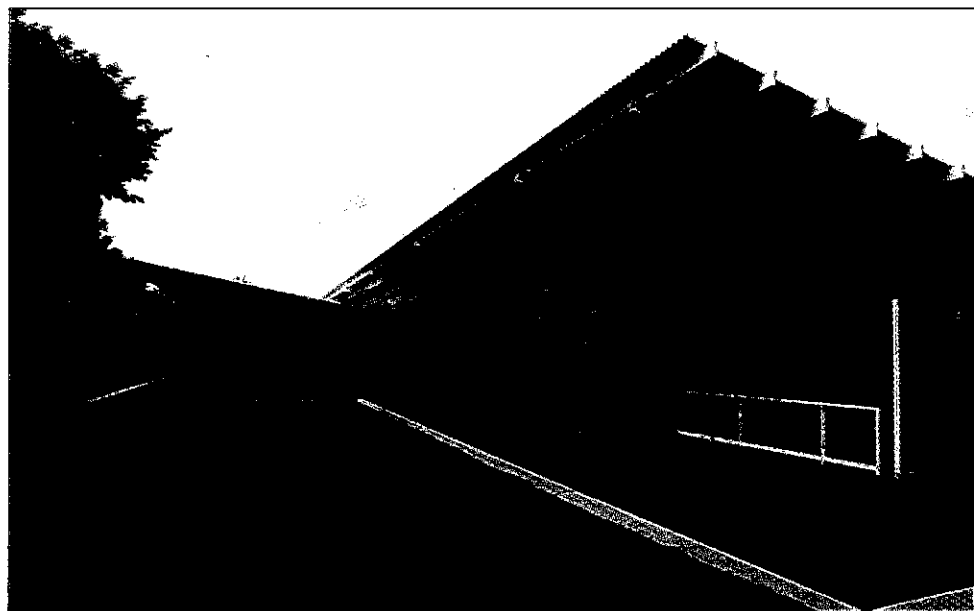
A compelling case for investors, report says

Chris Hutching

"Green" building proponents are increasingly targeting commercial property developers and owners. The latest approach comes with the publication of one of the first studies on the payback that can be achieved.

Graeme Finlay, a partner in architectural firm Warren & Mahoney and a member of the establishment board of the NZ Green Building Council, and David Fullbrook of engineering consultancy, e Cubed Building were commissioned by the Ministry for the Environment to write a "Value Case for Sustainable Building."

The study was commissioned to measure benefits of recently built "green" buildings, most of them owned by government departments or city and district councils, partly because the cost of green buildings is generally 2-6% higher than conventional



SOUTH CHRISTCHURCH LIBRARY: Moats surrounding the building are supplied with rainwater from the roof. Moat water is used for toilet flushing and irrigation. The building is double-glazed and insulated, and energy from the Christchurch water supply powers the heat pumps.

buildings.

Mr Fullbrook and Mr Finlay studied five buildings out of a possible 20 – Canterbury University's mathematics, statistics and computer science building, a university building, library, high school, hospital and office, a south Christchurch library, Waitakere

district hospital, Albany junior high school and CentrePort's new Statistics building in Wellington.

The authors say the report builds "a compelling case for investors" since green buildings have energy costs 35-50% lower than other buildings and less water used thanks to vari-

ous savings devices.

They say increased staff productivity arising from "green" features is difficult to quantify. "It may be equivalent to three to five times more than the direct energy and water cost savings. Research has shown that effects of plus or minus 5% to 15% in productiv-

ity could be attributed to indoor environmental issues."

The New Zealand case study buildings showed positive correlation, with "perceived productivity benefits" of up to 10%.

Some sustainable design features, such as lighting, break even in about five years and provide a high rate of return (about 15%) over a relatively short life span of about 10 years. Others, such as a highly efficient building façade, only break even in about 20 to 25 years and provide a more modest but sustained rate of return (6% to 8%) over a 50-year building life.

"With the likely introduction of sustainable building rating schemes such as the Green Building Council of Australia GreenStar Rating Scheme into the marketplace, buildings with higher ratings will also start to realise market advantages.

"Leasing documents and specifications tend to be recycled from one project to the next, perpetuating short-term leases, built-in obsolescence and synthetic rather than real requirements.

"By contrast, The British Council of Offices in the UK has developed a new standard office specification that addresses sustainable design issues from a commercially driven perspective."

Commercial projects normally require higher rates of return of about 6-15% with shorter investment horizons of five to 10 years.

"The lease period for a commercial building will have an effect in terms of capitalisation and may need to be longer for sustainable buildings. Leases greater than 10 years might become more the norm for sustainable buildings."

"New lease agreements for buildings are also likely to exclude any provision permitting building owners to recover from the tenant the cost of energy used by building central services during normal working hours. This would ensure building owners have an incentive to improve the energy efficiency of building central services," the report says.

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Green council all go

Chris Hutching

The recently formed Green Building Council has been given \$60,000 to appoint a chief executive and board of

directors over the next three months, according to interim chief executive Jane Henley who has been appointed to take the project forward.

The council has been

formed to mirror the work of its Australian counterpart where the government, through the Australian Greenhouse Office, is developing a model green lease that will apply to all government tenancies.

The first task is to write a green building rating system. Interested parties learned about the proposals at seminars in the main centres over the past fortnight.

"The rating system will be voluntary because there are a lot of people who don't see the advantages for them yet. So it will happen slowly as people see it makes good business sense," Ms Henley said. She expected the board to be in place after July.

Eco home success in savings

30% less energy and 25% less water than neighbours

Chris Hutching

An ecological home that was also a building research project backed by Fletcher Building has measured energy savings of up to 25% and water savings of about 30%.

The first NOW Home project involved building a new home in Waitakere, Auckland that incorporated modern materials and design methods readily available in the market. It cost \$220,000 to build.

Data collected over the past four months suggests that each year the three bedroom home will use about 30% less energy and 25% less water than similar-sized homes in the area.

The research consortium behind the design and construction of the home is called Beacon Pathway, comprising Waitakere City Council, Scion (formerly Forest Research), Building Research (Branz), New Zealand Steel and Fletcher Building.

Branz scientists measured the energy and water consumption of the family living in the home, as well as internal moisture and temperature levels.

Branz estimates that if all New Zealand homes were 1% more energy efficient, this would translate to savings of \$17 million a year.

If all homes were as effi-

cient as the NOW Home the savings would be \$510 million, according to Branz.

The design of the house maximises solar heat gain for even indoor temperatures on all but the 10 coldest days of the year.

The uncovered, coloured, polished concrete floor traps the sun's heat during the day and releases it at night. Insulation and double glazing minimise heat loss.

A solar panel provides most of the hot water, and rainwater from the roof supplements council water supply by about a quarter.

Low-energy appliances and low-water plumbing fittings also increase efficiency.

Branz predicts that the home will use about 6000kWh of energy a year – approximately half the general Auckland figure of 11,800kWh.

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