

Commercial incentive for energy efficiency

David Scott talks to a pioneer of energy-efficient architecture about the commercial relevance of passive solar design and the added value it can generate.

Architect Helen Richards' speciality is creating environmentally smart, energy efficient architecture through the use of passive solar design and other techniques. A member of the Royal Institute of British Architects, she is recognised as one of New Zealand's leading experts on energy efficiency in residential homes.

How relevant is energy efficiency in property development right now?

Our demand for energy is increasing and the problem is not just lack of resources, but the damage we cause in the generation process. Climate change is the biggest side effect of this. Pollution is another.

Buildings consume 50% of the energy we generate worldwide and are therefore a significant contributor to climate change. Designing energy efficient buildings is the smartest way to address this – and it should not be any more challenging or expensive than conventional forms of building.

In New Zealand, we are fortunate that we have a lot of sun – a huge free source of natural heating – and light. Making the most of this resource means an energy efficient building will need minimal heating and cooling – it will be a comfortable experience.

What is the commercial value of energy efficiency in property investment?

The New Zealand Building Authority wants buildings (especially homes) that don't need huge amounts of heating to survive through winter. This is partly tied up with our ratification of the Kyoto protocol (nationwide energy emissions).

I would take it one step further. In this climate (apart from extreme south),

it is possible to design a home/larger scale building that does not need any heating at all. It comes down to consideration of energy efficiency elements at design stage – and having the knowledge to incorporate these principles at that time. It doesn't necessarily have to cost extra.

Our company has done a lot of work in this area and we have found that an energy efficient building demonstrates extreme comfort – and saves about two thirds on power bills. This is an 'X' factor that sells, especially with informed people.

If property development is about maximising returns – and especially so if the apartments are middle to upper quality – these elements will sell.

What are the most critical aspects of energy efficient designs?

We don't realise it, but the energy we use at home – primarily in space and water heating – is huge. This is the most important element of energy efficient building design. At our company, we're designing homes that reduce this by two thirds – i.e. homes that need no heating or cooling. We do this by looking to the climate – including of course microclimate – for our initial design moves.

The houses we design work with the sun. They hold the radiant heat provided in the winter, autumn and spring, and keep it out in the summer. Tied in with a bit of extra insulation (not too much over building code often) – you end up with a house that never gets cold.

Mass materials are a critical part of this equation – and knowing where to put them in relation to the glazing – is where the expertise comes in. I would therefore say that these 'passive solar' principles are the principles I would consider most relevant.

Solar water heating is also a significant part of this energy saving. There are also other elements to an energy efficient house – such as choosing more efficient appliances and light fittings – but heating is the biggest factor to consider.

Beacon Pathway Limited is another organisation that is considering these principles in a more conventional format in their 'NOW' home in Auckland.

"Our designs might be more purist – but both are proving that this type of design can be cost competitive. In the same ways this would directly apply to property development also. There will be some sites and types of buildings where these principles are difficult to incorporate in the most efficient way – but what is important is having the mindset to consider these principles to any degree."

What's the bottom line for property developers who embrace the principles of energy efficiency?

Good sales! Added value. Interior environments that not only look good, but feel good. A point of difference. Reduced need for mechanical devices for heating/cooling. Big savings on energy costs. Lower running costs.

These kinds of outcomes are absolutely achievable. But it is not a case of technology – rather knowledge. We are talking about passive heating and cooling – designing with the climate. It's just a matter of finding the right consultants to provide the right information... and careful consideration when selecting sites.

Who can help property developers with energy efficiency?

The architect or building designer – with the right information. The contractor will follow the drawings and construction



Helen Richards

will generally not require any special skills that vary from the norm. A mechanical and electrical engineer can help with the design of (the very small) heating and cooling systems! These consultants would have been used in any case... it's a matter of finding those with the right information.

What is the urgency in working towards energy efficiency buildings?

Climate change. New coal-fired power station/hydro schemes to cater for increasing demand. It is not a question of how much we have available – we have to slow down. We don't relate our actions to a global scale but the problem is big on a global scale. I would say that creating buildings that are really warm and comfortable all year round provides a great benefit. And of course, reduced power bills are a huge plus.

David Scott is the commercial market manager for Winstone Willboards.