Newsletter of Beacon Pathway

Facing

August 06

Barriers and Incentives to Sustainable Building in Auckland

What are the major barriers to building a sustainable home in Auckland City? How do Auckland City Council's policies, plans and procedures help or inhibit sustainable building? What impact do national and regional policies and regulations have on sustainable building?

Beacon researcher Lois Easton and researchers from Hill Young Cooper and E Cubed Building Workshop have just completed a major report on identifying the barriers and incentives to sustainable building design and development within a local council environment. Jointly funded by Beacon and Auckland City Council, Auckland City has been used as a case study to examine the effect of local government policy and regulation on the uptake of sustainable building within New Zealand. The barriers, enablers and processes encountered by a number of sustainable housing developments in Auckland were reviewed as examples.

The Landcare Research Building in Tamaki is one of the greenest buildings in New Zealand. It targets energy use of 60%-70% less than standard practice, has rainwater recycling to be virtually water neutral and uses recyclable materials wherever possible.

Many of the barriers identified were widely applicable to urban councils. These include barriers within district plans and their administration, barriers within codes of subdivision, land development, infrastructure and connection standards, and barriers arising from administration of the Building Act.

A smaller number of barriers were specific to Auckland City, the most significant of which was to sustainable water solutions, with the current Metrowater approach in terms of connection standards, lack of staff support, and the Statement of Intent combining to provide a very significant barrier.

Recommendations from the report include:

1. Provision of dedicated staff support for sustainable building to provide advice and information.
2. Provision of education/information on sustainable building in Auckland City including funding opportunities
3. Promotion and branding of sustainable building as a desirable outcome and mainstream thing to do
4. Active promotion of current sustainable building ratings tools such as TUSC and the Green Homes Scheme.
5. Free design review for sustainable buildings;
6. Regular training of building consent and planning staff around sustainable building practices and techniques.
7. Development of internal guidelines/ acceptable practices/ practice notes around key sustainable building measures;
8. Review consent process to ensure input from policy staff to support sustainable building developments;
9. Actively promoting to applicants for building and resource consent a simple checklist of ways to make their homes more sustainable. This could relate to Beacon's High Standard of Sustainability features and include simple measures such as good solar orientation, additional insulation, use of solar hot water systems, double glazing, passive vents in windows, low flow water fittings and rainwater tanks

As a result of this report, Beacon is going on to develop a tool kit for Councils, refining its development with a higher level evaluation of Wellington City Council and Christchurch City Council District Plans.

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Don't set the bar too low for environmental standards

This is one of the key points of Beacon's submission on the review of the Building Code. Although one of the basic premises of the Building Code is that it is a minimum standard only, in practice the industry is generally geared up to build to the code requirements as standard, and the choice of higher-than-standard design and construction is not offered to homeowners.

Beacon's response to the Building Code Review Discussion paper argues for:

- changing the philosophical approach of the Building Code to one of enabling an outcome rather than minimising the likelihood that the outcome won't occur
- including provisions for retrofitting of minimum requirements in the Building Code as a key tool to ensure that all buildings are able to be used in ways that promote sustainable development.
- publishing 'Code, better, best' levels of building performance, with the "Code" level set to a high environmental standard and with Acceptable Solutions developed at the "better" standard to enable industry to "gear up" for higher standards and raise awareness.
- greater clarity of relationships between the Building Code and the Resource Management Act and the Local Government Act
- weaving the concept of Sustainable Development through the Code, taking care that each objectives complement rather than contradict each other
- including of a Rating Tool within the Code given the international and national development of rating tools for the promotion and quantification of sustainable development
- recognising that many building aspects are determined by the design of subdivisions / neighbourhoods

Beacon's full submission is available on our website: **www.beaconpathway.co.nz**

Life Cycle Assessment Workshops

Life Cycle Assessment is an analytical tool for the systematic evaluation of the environmental impacts of a product or service system through all stages of its life. Following Beacon's earlier workshop, the need for developing a greater awareness and understanding of Life Cycle Assessment in New Zealand was identified. Beacon partnered with the NZ Green Building Council to run three workshops in Christchurch, Wellington and Auckland.

The workshops were well attended with over 60 attendees in Auckland alone. 50% of attendees were design or professional people, 16% from suppliers or manufacturers, 12% from local and central government, and 12% other. The workshops aimed to provide an overview of the scope of Life Cycle Assessment, how it could be applied to a business, and how to understand and use Life Cycle Assessment data in procurement and decision-making.

Feedback on the workshops was positive. Two further reports are being produced, one on the methodology of applying Life Cycle Assessment and interpreting results, and one on how the results from Life Cycle Assessment studies can assist organisations to make improvements in manufacturing and other business activities.

The life cycle impacts of materials were considered (amongst other criteria) in deciding which materials to use in the Rotorua NOW Home

Beacon Pathway is a research consortium that aims to create affordable, desirable, sustainable homes and neighbourhoods for all New Zealanders.

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Research, research, research

Beacon's researchers have been busy completing some key projects:

Testing the Prototype Neighbourhood Sustainability Framework

Following the development of a Neighbourhood Sustainability Framework last year, the Neighbourhoods team have gone on to evaluate the framework. The assessment was undertaken by using the prototype to measure the neighbourhood sustainability of seven neighbourhoods in the areas of Harbour View, Blake Street (Ponsonby), Petone, Aranui and Christchurch East Inner City.

Two overseas data collection and assessment tools were used to conduct sustainability assessments on the neighbourhoods.

The LEED-ND Tool - Currently under development by the US Green Building Council, LEED-ND aims to assess built environment sustainability, aimed particularly at new developments. The research showed that LEED-ND does not provide sound measurement of all elements of the critical domains. There is a need to develop a New Zealand tool which can measure the critical aspects of neighbourhood sustainability more simply.

Neighbourhood Surveying and "The Place Where You Live" Survey - A comprehensive, self-complete questionnaire adapted from two surveys developed by Oxford Brookes University. "The Place Where You Live" Survey shows the importance of people's reported experience when assessing neighbourhood sustainability. As a research tool, it provides important insights into the dynamics of built environments and sustainable behaviours. However a useful, practical residential liveability assessment tool can be developed by using just 14 of the 81 questions in the survey.

The Neighbourhood Sustainability Framework's overall structure and content worked well. Researchers will now go on to apply the finalised framework to two neighbourhoods:

- The Addison development in Takanini, Papakura District – a greenfield site
- Broughham Place in Massey, Waitakere City – a neighbourhood retrofit

The framework will be further developed into web/software based, interactive tools for different end-users and development conditions.

Renewable Energy – targeting water and space heating

The importance of distinguishing between high and low grade energy was highlighted in a Beacon report on renewable energy. Low grade energy doesn't have to conform to any delivery specification and can be used for space and water heating (e.g. sun and wood). High grade energy, (i.e. electricity) has strict standards and is the type which would run a computer, DVD player or microwave oven. Given that the production of electricity is expensive, both from a generation and distribution perspective, it makes sense to reserve this type of energy for end uses specifically requiring it, and to look at low grade energy to satisfy space and water heating demand.

The report reviews the benefits and problems of five sources of low and renewable energy:

- Solid fuel burners
- Solar water heaters
- Photovoltaic arrays
- Wind generation
- Heat pumps

Multi-paned windows

This report was commissioned to provide an overview of what is available nationally and internationally in window technologies. It outlines the key international and local glazing technologies developed in the 21st century, covering self cleaning glass, developments in spectrally selective glass and insulating spacers, holographic glazings, specialised designs of light shelves and light-pipes. Advances in dynamic systems include automatically operated Venetian blinds between the panes of double glazing, and hybrid composite photochromic and electrochromic glazings.

Emerging advances in framing materials are covered, including wood, aluminium, vinyl, wood composites, hybrid and composite frames, and fibreglass and engineered thermoplastic frames. The report discusses the structure and main stakeholders of the New Zealand market.

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TOGETHER, CREATING TOMORROW'S HOMES

Rotorua NOW Home Open Days

With the Rotorua NOW Home nearly complete, the public of Rotorua were invited to visit the house on two open days in August. Several hundred visitors looked through the house each day, and, although the house was clearly not finished, the feedback was largely positive. The polished concrete floors, pellet fire and wooden louvres for passive ventilation were the most commented-on features. Many visitors were undertaking their own renovations or building and were very interested in how they could access advice and products to achieve similar results.

Beacon has partnered with Housing New Zealand Corporation in the project and the home will remain part of Housing New Zealand's portfolio. A two year monitoring period, while tenanted by Housing New Zealand tenants, will assess the effectiveness of the design. The home, built using readily available materials, is designed to be affordable and desirable to most New Zealanders while also focusing on energy efficiency, sustainable water use, storm water disposal and waste reduction, reduced running costs and the provision of a healthier and safer living environment.

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