

# Facing

Newsletter of Beacon Pathway

October 08



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## HomeSmart Renovations

### The homeowners

230 homeowners have been recruited so far for the HomeSmart Renovations project, with further recruitment ongoing. We have had an excellent response from people in Christchurch and are now pushing recruitment in Auckland, Wellington, Rotorua/Taupo, Nelson / Marlborough and Dunedin/Southland.

As part of the project, homeowners fill in a questionnaire about their current home's performance and any problems. This is similar to the Home Health Check on Beacon's HomeSmarts website ([www.homesmarts.org.nz](http://www.homesmarts.org.nz)) which has just been upgraded to include recent energy and housing typology research.

Over time, as well as registering for the project on the Beacon website, interested participants will be able to do so via HomeSmarts with their Home Health Check data transferring directly across to the project.

As well as providing the advice and links to the Smarter Home website, the HomeSmarts website has had an additional module added to it, to enable people to access more tailored advice, specific to their home - a particularly useful function for those people outside the HomeSmart Renovations project areas.



Temperature monitoring has been installed in 100 of the homes as part of the HomeSmart Renovations, and water meter installation is shortly to commence.

### The assessors

Meanwhile training of 25 HomeSmart Renovation assessors around New Zealand has been completed and assessments are underway. The assessors will undertake the HomeSmart Renovation Assessments, a one hour visit to each house and discussion with homeowners. From this, each assessor will use the HomeSmart Renovation Plan Builder to generate a Renovation Plan individually tailored for each house.

With their Renovation Plan, homeowners will also receive a *Home Owner Manual*, with tips and information for managing the performance of their home and the features within it, and a guide on things they need to know when going about when organising their home renovation - *Project Management for Participants*.

Beacon Pathway is a collaborative research consortium of organisations with a considerable stake in the quality of the residential sector:  
BRANZ, Scion, Waitakere City, Fletcher Building and New Zealand Steel

## Helping councils to 'slow the flow'

### The background

Colourless, odourless and typically taken for granted – water. A necessity of life New Zealanders have always viewed as available in limitless quantities, with few associated costs – water.

In a country of moderate rainfall, access to cheap, even free, water has always been regarded as an inalienable right. But as the world focuses on the impact of the carbon footprint on the environment, there is a poor relation demanding comparable attention – the increasingly scarce world supply of water.

The recent shortages in Australia, the serious social and political implications of the use, and abuse, of the great water systems of countries like India and China and, closer to home, the competing demands for water rights in places like Canterbury, put the issue into perspective. Future generations will witness conflicts around this basic commodity of human existence.

The demand for water will continue to grow. The challenge is how to meet this demand and increase the respect paid by all New Zealanders to this finite resource by increasing the efficiency of its usage.

### The options

In the face of ever growing demand, councils and other water supply authorities are faced with alternatives. They can follow a path of extensive on-going capital works programmes, extending the technologies of past centuries, and using increasing levels of both water and associated energy to supply water urban demands. Alternatively, they can manage demand through a programme of best practice policies and regulations for water efficiency.

Under the 'build to supply demand' approach, consumers will continue to be exposed to funding heavy capital programmes, without being presented with the opportunities for examining their personal consumption pattern. They will also be denied knowledge of the scope that exists to control the speed and level at which their annual rates rise.

There is more to this issue than simply the ever-present ratepayer resistance to constant rate increases. As people, produce and ecology compete, water shortages are likely to become a growing issue for both developed and developing countries; better utilisation of the commodity and reduction of wastage is essential.

A fair and viable allocation of water between the competing stakeholders demands new steps in water management, steps that recognise the mix of complementary policies and approaches available.

## *Slowing the Flow*

### A "must read" publication coming your way

Beacon's research suggests that there is a pathway to make water demand management a successful alternative to simply providing new supply sources. While many demand management programmes are already carried out in New Zealand, more needs to be done.

From our research, Beacon has produced *Slowing the Flow*, a comprehensive framework which helps water supply authorities to develop a demand management strategy. Any strategy to reduce water demand must include education and awareness-raising as basic requirements but other forms of policy including supportive regulation or economic instruments are needed to have a significant impact.

The framework is not prescriptive but recognises that each council needs to consider what to do and how to implement demand management interventions, according to their own local context.

Copies will be sent to all councils, or phone (09) 522 5170 to get your copy. Alternatively download it from our website:

[www.beaconpathway.co.nz/water.aspx](http://www.beaconpathway.co.nz/water.aspx)



## Sustainable Building 2008, Melbourne

Four Beacon researchers recently attended SB08, the World Sustainable Building Conference, in Melbourne to present our research. This three-yearly event, jointly organised by iiSBE, CIB and UNEP, was last held in 2005 in Japan. In between the international conferences, there are regional conferences, the most recent being SB07 in Auckland.

The theme for SB08 was Connected Viable Liveable. The global challenge was succinctly presented by Nils Larsson (Executive Director of the International Initiative for a Sustainable Built Environment (iiSBE) and organiser of the Green Building Challenge), Peter Garrett (Australian Environment Minister) and Bill Rees (best known as the originator of the 'ecological footprint analysis' concept).

### Beacon papers presented

Katja Lietz, Kay Saville-Smith, Denise Bijoux	Neighbourhoods, local authorities and community development: opportunities for improved sustainability
Maggie Lawton, Damon Birchfield	Making New Zealand Policy, Water Conservation Friendly
Lois Easton, Andrew Pollard and Roman Jaques	Beacon NOW Home and Beacon NOW Home Renovations: transforming New Zealand's housing stock
Kay Saville-Smith, Verney Ryan	Energy - "From Serial Renovator to Sensible Retrofitter"
Megan Howell, Lois Easton	A High Standard of Sustainability for New Zealand Homes.

### Thinking beyond 'business as usual'

Many of the presentations were at the level of business as usual. Notable exceptions were Chrisna de Plessis (South Africa) and Joe Van Bellingham, the developer of Dockside Green in Vancouver.

However, the programme, as a whole, missed the point – **that we should be retrofitting what we have**. They also missed – in general – the importance of residential design.

In a recent letter to US Green Building Council constituents, Rick Fedrizzi (CEO, USGBC) said:

*"It's time for the green building movement to deploy the expertise and capacity we've built in new construction to green what we've already got. Ninety-nine percent of achieving our mission is wrapped up in our existing homes and buildings. It will save money. It will save energy. It will help save our climate. And directly relevant to today's economic environment, it will create good, green, local jobs. As just one example, USGBC estimates that a 100% commitment to greening existing commercial buildings alone would create more than 1.5 million new opportunities for employment for out of work Americans."*

That's a sentiment that Beacon heartily endorses. We believe too, that the opportunities to see the building industry through the current financial crisis lie in renovation. It is the perfect time to switch New Zealand homeowners on to improving the performance of their homes as well as its appearance.

### SB10

Beacon and BRANZ have jointly submitted a proposal to the Sustainable Building Organising Committee to stage a Sustainable Building Conference in New Zealand in May 2010. Lois Easton has been appointed Chairperson of the New Zealand organising committee – please contact her if you have any interest in being part of SB10: [loise@beaconpathway.co.nz](mailto:loise@beaconpathway.co.nz)

## How easy would it be to renovate your home?

Beacon recently provided material from our Energy Retrofits research for a Consumer article. This table is a guide to how easy it would be to renovate your type of house.

Read the Consumer article 'Right way to renovate' online at [www.consumer.org.nz](http://www.consumer.org.nz)

House type	Renovation pros	Renovation cons	Conclusion
<p>Villas and bungalows</p> 	<ul style="list-style-type: none"> <li>▪ Good 'bones' with sound native timbers</li> <li>▪ Retrofitting insulation in ceiling relatively easy</li> <li>▪ Ease of installing under-floor insulation will depend upon the space available</li> <li>▪ Able to accommodate a range of energy efficient and sustainable options for heating</li> <li>▪ At least one roof orientation to the north for solar panels, plus a good sized hot water cupboard</li> </ul>	<ul style="list-style-type: none"> <li>▪ Often oriented to the street rather than the sun</li> <li>▪ Double glazing windows difficult due to non-standard window sizes and heritage issues. Secondary glazing may be more appropriate</li> </ul>	<p>Good candidates to retrofit for better energy performance</p>
<p>Art Deco</p> 	<ul style="list-style-type: none"> <li>▪ Highly valued and stylish, so owners may go the "extra mile"</li> <li>▪ Suitable for solar water heating where the panels can be set up on skillion roof</li> <li>▪ Able to accommodate a range of efficient and sustainable heating options</li> </ul>	<ul style="list-style-type: none"> <li>▪ Skillion roof difficult to retrofit</li> <li>▪ Many have a renovated roof on top of a replaced roof due to previous failures</li> <li>▪ Built low to the ground with lack of crawl space under-floor</li> <li>▪ Often oriented to the street rather the sun</li> </ul>	<p>Likely to require moderate to considerable effort and cost to energy retrofit</p>
<p>State houses and mass housing (1930-1970)</p> 	<ul style="list-style-type: none"> <li>▪ Well oriented to the sun</li> <li>▪ Hipped roof with 40 degree pitch for solar hot water panels</li> <li>▪ Good access in ceiling and under floors</li> <li>▪ Small spaces may prioritise heating systems such as heat pumps or inset wood burners</li> </ul>	<ul style="list-style-type: none"> <li>▪ Big range of styles - 50s classic through to 70s standard</li> </ul>	<p>Good candidates for energy retrofits - the "50s classic" type is particularly good</p>
<p>1960s and early 1970s multi-unit houses</p>	<ul style="list-style-type: none"> <li>▪ Potential for mass retrofit, for example six units at once</li> <li>▪ Modular design might assist solutions</li> <li>▪ Possible renewable energy options for all units</li> <li>▪ Common walls means reduced heating requirement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Un-insulated concrete slab</li> <li>▪ High thermal mass with poor insulation</li> <li>▪ Skillion roofs and lack of floor access</li> </ul>	<p>A challenge - likely to require considerable effort and cost to retrofit. Multiple ownership can be a major impediment.</p>

<p>1970s housing, pre-1978 insulation</p> 	<ul style="list-style-type: none"> <li>▪ 95% single storey but with garage underneath for ease of under-floor insulating</li> <li>▪ Where a pitched roof, solar water heating system possible</li> <li>▪ No major heritage issues to a retrofit</li> <li>▪ Heating retrofits relatively easy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Large numbers, built before insulation required</li> <li>▪ Aluminium-framed windows, some floor to ceiling glazing (including sliding doors) means big areas for heat loss</li> <li>▪ If there is a skillion roof, difficult to retrofit unless re-roof or lower ceiling</li> <li>▪ Cladding varies (asbestos fibre cement, manufactured timber, stucco, concrete, plastics, weatherboard)</li> <li>▪ Often not well oriented to the sun</li> </ul>	<p>Wide variation in styles and generally moderately easy to energy retrofit</p>
<p>The 80s housing</p> 	<ul style="list-style-type: none"> <li>▪ Generally have some ceiling insulation (and possibly wall) but may need replacement or top-up</li> <li>▪ Heating retrofits relatively easy</li> <li>▪ Some aluminium frames will take double glazing units into existing frames</li> </ul>	<ul style="list-style-type: none"> <li>▪ Often low to the ground or on un-insulated concrete slabs</li> <li>▪ Often poorly oriented to e sun</li> <li>▪ Aluminium framed windows, some floor to ceiling glazing (including sliding doors) means big areas for heat loss</li> <li>▪ Often small spaces for new energy efficient hot water cylinders</li> </ul>	<p>Wide variation in styles and moderately difficult to energy retrofit</p>
<p>The 90s housing (pre-1996)</p> 	<ul style="list-style-type: none"> <li>▪ Generally have some ceiling insulation (and possibly wall) but may need replacement or top up</li> <li>▪ Modern aluminium joinery - often able to take double glazing units</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not generally oriented to the sun</li> <li>▪ Some poorly built examples show weathertightness problems</li> <li>▪ Low pitched roof makes adding more insulation difficult</li> <li>▪ Un-insulated concrete floors</li> </ul>	<p>Wide variation in styles and moderately difficult to energy retrofit</p>
<p>Last decade (1996-2007)</p> 	<ul style="list-style-type: none"> <li>▪ Well insulated</li> <li>▪ Modern aluminium joinery - often able to take double glazing units</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reasonably airtight, so ventilation and indoor air quality are often the biggest issues</li> <li>▪ High number of inset downlights in ceiling, making ceiling insulation less effective</li> <li>▪ For some, untreated timber and construction techniques make it potentially hazardous</li> <li>▪ Leaky building era</li> <li>▪ Not generally oriented for the sun</li> </ul>	<p>Daunting retrofit option. Seek expert advice as each case needs to be considered on its own merits.</p>

## The National Policy Statement on Freshwater Management

In July this year the Ministry for the Environment released for consultation the proposed National Policy Statement on Freshwater Management, developed under the Sustainable Water Programme of Action.

The over-arching objectives of the proposed National Policy Statement are to achieve improved water quality and more efficient use of water, including better management of its demand. As is common, proposed regulation has its detractors; in this case, there have been cries that it is too little, too late.

However, a National Policy Statement is a high level direction-setting tool. It defines the issues, sets the objectives and provides policy that directs regional and local government. The expression of those policies as methods or rules is deliberately left to individual councils to ensure that they encourage innovation that meets and matches their local requirements.

Rural water allocation has been increasingly contentious in some parts of the country over recent years with 77% of allocated water in New Zealand currently being used for irrigation in primary production. The National Policy Statement has, however, recognised the projected increase in urban water uses and seeks to ensure that demand is well integrated into the overall allocation of water.

In essence, the requirement to allow for future increases of water take for direct human use is recognised, but not without a caveat. Councils will need to show how their planning will ensure the wise use of water; they must meet the needs of their communities, taking into account all local social, environmental and cultural interests.

In preparing their district plans, it will be an opportunity for councils to look beyond legislation and acknowledge the major cost savings and ecological benefits that will accrue from managing water demand.

A well considered water demand management plan, specific to each district or region which can provide a basis for other policy documents, will ensure the best outcome for the community and help protect our national water resource.

Water is one of our national advantages, economically and environmentally. It is the lifeblood of our primary production industry and our cities and communities. With increasing demands and uncertain future climatic forecasts, the national policy statement sends a much needed signal that we can't waste water and must manage its demand.

## Snippets

### SBN Awards

Beacon was again proud to sponsor the Sustainable Design and Innovation Award at the 2008 NZI National Sustainable Business Network Awards. This year Nick Collins presented the award to Meridian Energy for their new corporate head office building in Wellington.



The Meridian building on Wellington's waterfront is New Zealand's first completed, purpose-built, five star green building, demonstrating how bringing together expert groups (tenants, architects, engineers and property developers) in the design and construction process can result in a truly innovative, striking and cost-effective result.

### Habitat for Humanity presentation

Nick Collins recently presented to the UN World Habitat Day Housing Forum which focused on the issues of substandard housing and the opportunities we have to build better communities. Nick's topic was how addressing the sustainability of homes can deliver better outcomes in environment, health, affordability and family life.

## New on the website

### **Best Practice Policy Approaches to Encourage Sustainable Residential Building and Renovation**

This report is the first step in a project to provide an evaluation of policy provisions, and develop a package of model provisions for uptake by other councils. The project will clarify what measures are feasible and effective for local government to undertake, and encourage more councils to introduce appropriate provisions to support sustainable new homes and renovation.

Through a literature review and questionnaire-based interviews with officers from 17 local authorities, the report identifies existing and successful local government policy approaches to encouraging sustainable building and renovation.

Researchers found that councils are increasingly aware of their role in encouraging sustainable building practices, and that they are making connections between sustainable buildings and wider community and environmental benefits. A total of 85% of the councils interviewed responded that they were actively encouraging more sustainable forms of building. More than 95% saw it as either “relevant but not imperative” or “very relevant”.

A number of good examples of policy initiatives are already in place. With some guidance, these could be replicated by other councils e.g. the Eco Design Advisors and some District Plan provisions. Other initiatives, such as the range of potential financial incentives, have not been so successfully implemented to date. Further work is needed to understand why this is the case and to identify whether practice could be improved.



However it is clear that, in many cases, councils lack the resources to either develop or operate programmes that can make a difference. A number of initiatives are successfully underway and are helping to build council capacity in the sustainable building field. However initiatives tend to be piecemeal and a full range of incentives is far from being implemented. Knowledge gaps are also an issue.

There is potential for a much more coordinated and supportive policy environment for sustainable building. In this light, the project proposes to develop a Resource Manual, to document the range of potential policy initiatives, with an emphasis on information to support sustainable building policies, model text, and guidelines for implementation as appropriate.

This proposal was generally welcomed by the interviewed councils, particularly if the Manual were to be actively introduced to councils, via training sessions or similar processes.

Available on the website at:

[www.beaconpathway.co.nz/other+research+-existing+homes.aspx](http://www.beaconpathway.co.nz/other+research+-existing+homes.aspx)



#### **What is it?**

A fantastic NEW and FREE service operating from eight Councils - Waitakere, Auckland, North Shore, Hamilton, Tauranga/Western Bay of Plenty, Kapiti Coast, Wellington and Queenstown. The *Eco Design Advisor* is a specialist, providing free energy, water and material related advice on home building projects, to ensure better use is made of resources.

## ***Submission on Scope of a National Policy Statement on Urban Design: Background Paper***

Our submission made the following points

- The focus needs to be on the regeneration, improvement and reconditioning of the existing built environments of cities and towns.
- A precautionary approach needs to be taken with regard to any developments outside the boundaries of existing built environments.
- Urban design needs to facilitate the interconnections between households, neighbourhoods and broader town and city infrastructure and amenities.
- Urban design should develop resilient neighbourhoods and businesses including:
  - Producing and managing key resources within local built environments, particularly energy and water.
  - Recycling waste within the urban environment.
  - Protecting soils that can be used for food production at the household or neighbourhood scale.
- A resilience orientation rather than an adverse effects approach needs to be undertaken.

Available on the website at:

**[www.beaconpathway.co.nz/submissions.aspx](http://www.beaconpathway.co.nz/submissions.aspx)**

## ***Submission on the Proposed National Environmental Standards for On-site Wastewater Systems***

Beacon's submission supported the introduction of the proposed Environmental Standard in principle, while flagging the need to include grey-water systems in the Standard. Beacon's water research indicates that a demand management approach is needed in New Zealand to reduce water consumption. One of the methods used to reduce consumption and strengthen resilience of communities, is the use of grey water systems, either on their own, or in combination with rainwater tanks, to reduce peak demand, slow stormwater and make the best use of waste water.

In the course of discussions with councils across New Zealand, the issue of maintenance and the lack of standards for on-site solutions were frequently raised as barriers to the introduction of grey-water systems.

Beacon sees the proposed On-Site Wastewater Environmental Standard and requirement for the maintenance of sewage-based waste water as very helpful, but is not clear whether this would include greywater systems as well. If grey water systems could be included, this would remove at least two of the potential barriers to the uptake of these systems on a broader scale in New Zealand. Although this would potentially add to the cost of these systems it would deal with any residual concerns about health or environmental effects.

Beacon therefore requested that consideration be given to the Warrant of Fitness model being expanded to include grey-water as well as sewage based systems.

Available on the website at:

**[www.beaconpathway.co.nz/submissions.aspx](http://www.beaconpathway.co.nz/submissions.aspx)**