Beacon
TOGETHER, CREATING TOMORROW'S HOMES

Creating home and neighbourhoods that work well into the future and don't cost the earth

NOW Home® Renovations: from 9 to 1000

Beacon Symposium 2008

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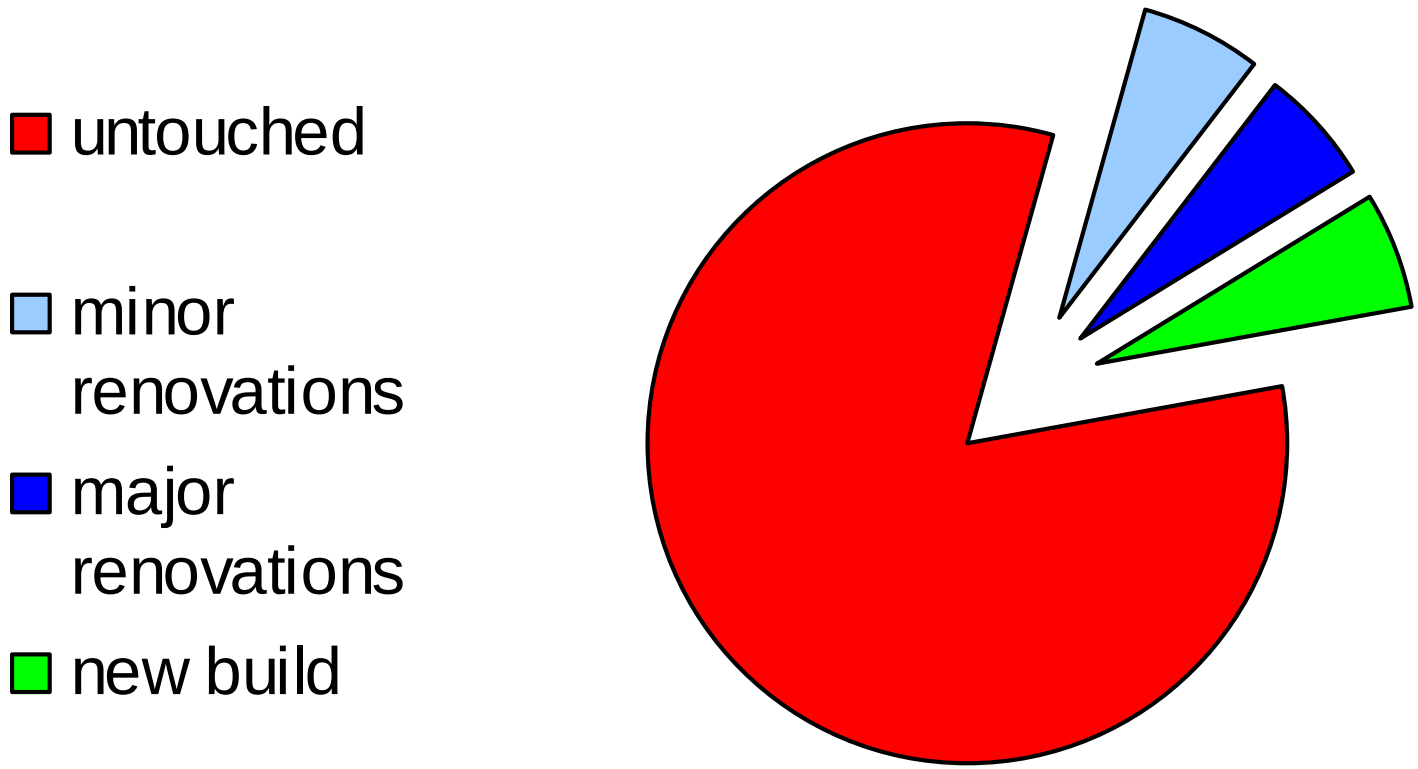
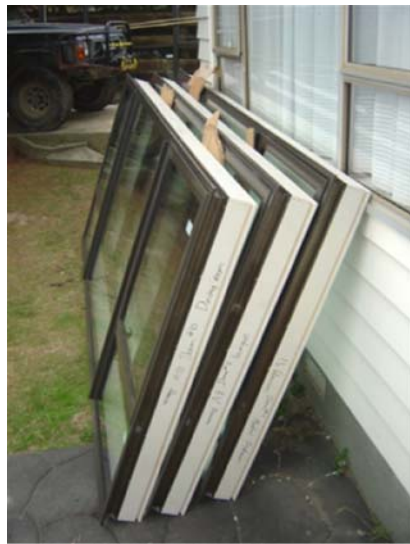
Scale of the challenge

1.7m NZ homes in 2012



NOW Home® Renovations

- A NOW Home® Renovation is a sustainable renovation that address issues of energy and water efficiency, poor indoor environment (moisture, temperature and indoor pollution) and waste production: Bringing up homes to meet High Standard of Sustainability™ benchmarks
- Prototype NOW Home® Renovations have been undertaken on a range of homes in Papakowhai, Porirua



Types of Homes

- A range of building materials and typologies (eg skillion roofs, concrete floors, suspended floors, cavity roofs etc)
- Pre-retrofit data indicated most homes cold, damp, high energy and water users
- Retrofits undertaken with range of intervention levels
- Monitoring from winter 2006 (pre-retrofit) to Sep 2008
- Retrofits done over autumn 2007

Findings – doing the renovations

- Building Compliance – all of the homes differed from the plans held by the Council, installing double glazed windows in a retrofit situation was hard – no Acceptable Solution
- Need active project management to co-ordinate the range of inputs
- Retrofitting double glazing is hard, needs experienced tradesmen, split level houses meant a need for scaffolding
- Retrofitting double glazed glass into existing panes is easier
- Lowering skillion roof and insulating successful
- Is a best order of retrofit – insulating should happen after hot water/ plumbing interventions

Papakowhai NOW Home® Renovations – House A

Sustainable renovation features include:

- Lowering skillion ceiling and insulating to R 4.6
- Polythene on the ground to stop rising damp
- Replacing an old woodburner with a low emission pellet burner
- Ducted heat transfer system to distribute heat to the bedrooms
- Underfloor insulation to R2
- Worm farm

Papakowhai NOW Home® Renovations – House B

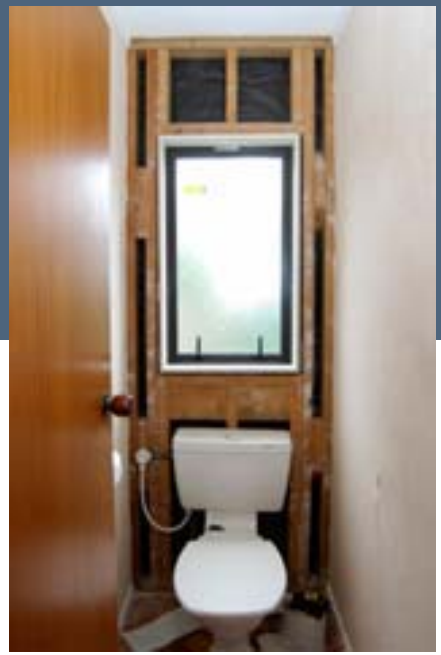
Sustainable renovation features include:

- Solar hot water system
- Dual flush toilets
- Rangehood in kitchen
- Ceiling insulation top-up (R 3.2)
- Wall insulation and pelmets
- Replacement wood burner & ducted heat transfer system
- Replacing windows and frames with new double glazed units

Papakowhai NOW Home® Renovations – House C

Sustainable renovation features include:

- Top-up of ceiling insulation to R5
- R2 underfloor insulation
- Polythene on the ground
- Wall insulation in a south facing wall
- Showerdome
- Solar hot water system
- Replacing window panes with double glazed units in the existing frames
- Putting in a worm farm



Findings: Monitoring data – first winter

Pre and post retrofit monitoring from the first winter has shown:

- Substantial increases in living and bedroom temperatures
- Elimination of damp and mould problems
- Substantial electricity savings in some homes
- Strong positive response from homeowners on improved living conditions in the homes

Most successful features

- Solar hot water systems (very significant contributor to electricity savings)
- Insulation of whole thermal envelope (ceiling, underfloor, wall)
- Heat transfer systems to take heat from living spaces to bedrooms
- Mechanical ventilation of wet areas
- Water efficient bundle

Key research partnerships

Research Providers

Hosts

Suppliers (products / labour)

BRANZ

EnergySmart

preserving New Zealand's natural resources

Porirua City Council

PinkBatts ULTRA

FISHER

hutt mana CHARITABLE TRUST

GIB

Rinnai GAS APPLIANCES now that's smart!

FLETCHER ALUMINIUM PREMIUM SYSTEMS INNOVATIVE SOLUTIONS

METRO GLASSTECH

azzuro Solar

NOW Home® Renovation Project

- Taking research findings and developing a range of best practice tools, guidelines, procedures and training materials for sustainable home renovation
- Working with key community retrofit partners (EnergySmart, Community Energy Action, Energy Options)
- Aim to take tools and guidelines and pilot in a 1000 home renovation project across New Zealand
- Homes monitored against Beacon High Standard of Sustainability™ benchmarks (Energy, water, IEQ, materials, waste)

Assessment Tools proposed to be developed

- Consumer self assessment
  - Web-based, also in hard copy or able to be done by telephone (recognising use of web is actually low)
  - Based on HomeSmarts™ tool
  - Will provide prioritised sustainable renovation package/plan, and idea of costs for the consumer
  - Presented in a way that is accessible for the lay person – and informed by their motivations (e.g. warmth, comfort, health rather than efficiency and sustainability)
- Industry Assessment Tool
  - Detailed in house assessment to be used by retrofit partners

home smarts

Login

Email Address

Password

Forgot password?

Login

Register

By registering, you can store your results/choices and modify them when you return to the site later.

→ Register

Welcome

A home is 'smart' if it is comfortable, healthy and enjoyable to live in, doesn't cost the earth to run, and is friendly to the environment.

Homesmarts is a quick, easy way to find out how your home measures up, and learn about the simple steps you can take to create a better living environment for yourself and your family.

Smart Home Tour

Go to Smart Home Tour - Take this quick tour of a smart home, and see how your home compares.

→

Home Health Check

Go to Home Health Check - Is your home comfortable and healthy to live in? Is it costing you more than it should?

→

Get Advice

Go to Get Advice - Are you looking for advice on making your home warmer, drier, more comfortable? Answer a few quick questions and we'll give you our top suggestions.

→

Done

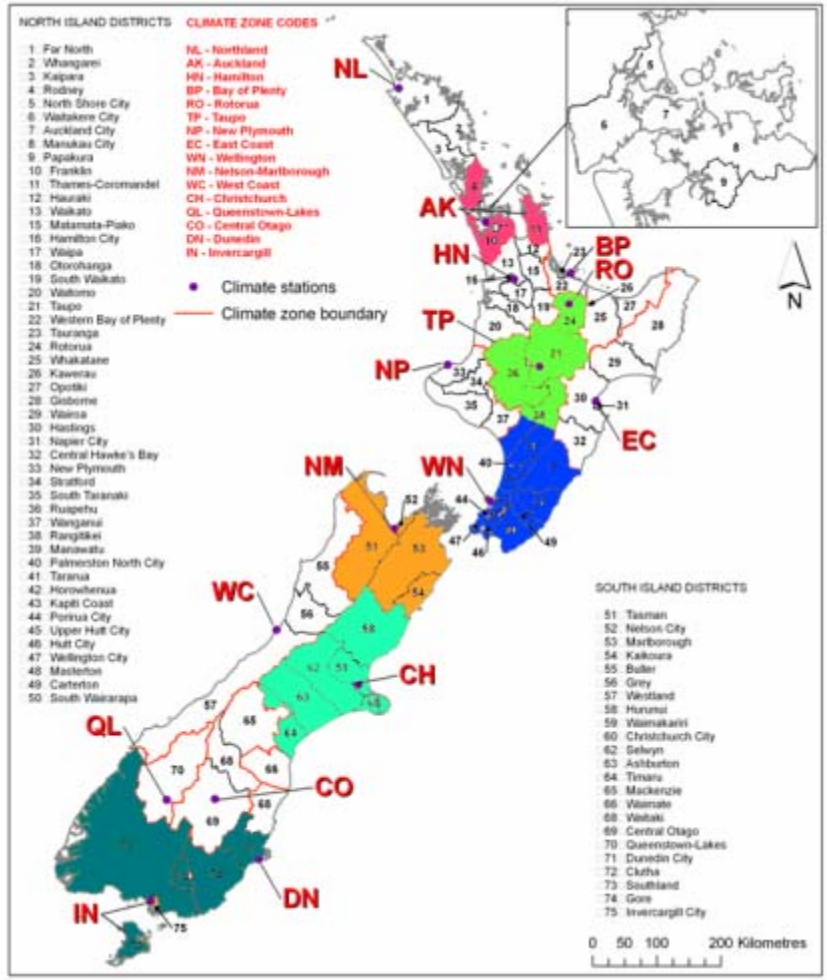
Renovate 1000 Pilot Project

- Aims to test the NOW Home® Renovation Procedures and Assessment Tools, and the performance achieved by the homes renovated using them. Use the learnings from the pilot to make these a useful, relevant and “must have” set of procedures and tools.

- Give our partners and the community the opportunity to increase their knowledge and understanding of sustainable renovation, thereby raising both capability within the industry and knowledge in the community of sustainable renovation.

Renovate 1000 Pilot Locations

- 200 houses in six locations across New Zealand
- Locations based on EECA Home Energy Rating Scheme (HERS) Climate Zones
  - Auckland Region
  - Rotorua/Taupo
  - Wellington
  - Nelson/Marlborough
  - Christchurch
  - Dunedin/Invercargill



Now Home® Renovations Pilot Project – households

- Aim to have sample across household income range
  - $0-25,000
  - $25,000 - $50,000
  - $50,000 - $100,000
  - $100,000 +
- Renovations funded by homeowners – but accessing subsidies and assistance where available eg Energywise Grants and Energywise Loans as well as local incentives e.g. Clean Heat and water efficiency programmes

Progress so far

- Work on developing NOW Home® Renovation Procedures:
  - Working in partnership with Community Energy Action, Energy Options and Energy Smart
- Registration of interest from homeowners
- Working with potential funding partners to try and pull together funding packages
  - EECA, local councils, lines companies, banks

Next steps

- Will be actively recruiting households from mid July
- Aim to have monitoring equipment for “pre-retrofit” data in place by end August 2008
- In home assessments underway Sept 2008: wider group of project partners
- Retrofits over summer – some undertaken by partners, some through standard commercial models
- Monitoring of home performance through to end of 2009

Conclusions

- Current subsidised retrofit programmes are not bringing New Zealand homes to a High Standard of Sustainability™
- Beacon is working with partners to take the retrofit learnings to date and develop Tools and Procedures which facilitate whole house sustainability renovation
- The 1000 home NOW Home® Renovation Project aims to both pilot these Tools and Procedures and build capacity and awareness about whole house sustainability renovation
- Success of this project requires all parts of the value chain to engage with sustainable renovation