Beacon
TOGETHER, CREATING TOMORROW'S HOMES

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

Improving the Houses of Today: Now and Tomorrow's Houses

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How do we build a carbon neutral society?

- Ordinary people have to make the stepwise change
- Our Homes and Neighbourhoods are a huge part of ordinary people's contribution to greenhouse gas emissions
  - Energy use in the home
  - Waste produced in the home
  - Transport from their home to work, shop and leisure
- But most people are not motivated to change

Beacon's Now Homes® Projects

- Now Homes® Hypothesis
  - Using current technology and knowledge it is possible to build a home significantly more sustainable than current new housing for a price that is affordable to most New Zealanders
  - Two NOW Homes ® have been built in Waitakere and Rotorua
  - Homes are occupied by "normal" families with no special training
  - Homes are monitored against a Beacon's High Standard of Sustainability benchmarks

Year 1 Waitakere NOW Home® Monitoring

- Home performing very well – monitoring[1] supports hypothesis that is much more sustainable than a standard new home:
  - 33% less energy used than comparable home (37% less than an “average” home in the climate zone)
  - 45% less energy used by the household than their previous home
  - 40% less reticulated water use than surrounding households
  - 66% less reticulated water use than Auckland Region average
  - Home is warm, dry, comfortable and healthy – and much loved by the family who live there
- [1]Monitoring programme designed and undertaken by BRANZ Ltd

Some Key Findings

- Comfort is not dependant on high consumption – homes can be built which are warm, healthy and comfortable without a need for significant heat input.
- The house itself can mitigate people's behaviours – ordinary people can live ordinary lives and use less resources with lower environmental impacts and lower costs.

NOW Home® Suppliers

- CHH Woodproducts
- Climate
- Dimond
- ECO-Block New Zealand
- EECA
- Energy Options
- Fisher & Paykel
- Fletcher Aluminium
- Winstone Wallboards
- G J Gardner
- Glover Real Estate
- Aquatica
- New Zealand Steel
- Kresta Blinds
- Nulook
- Pilkington New Zealand
- PlaceMakers
- Resene Paints
- Ross Roofing
- Exel Group
- Tasman Insulation
- The Laminex Group
- Joinery Direct
- Total Fascia
- Heirloom

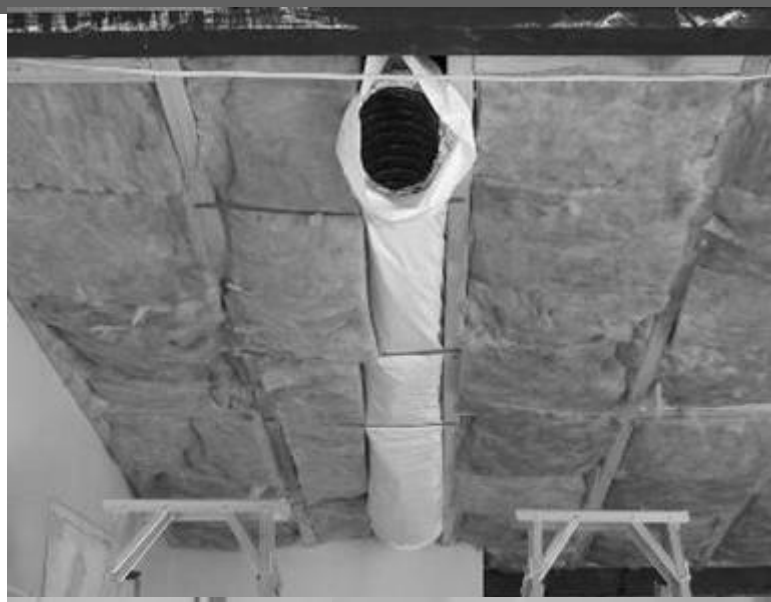
Beacon NOW Home® Renovation Project

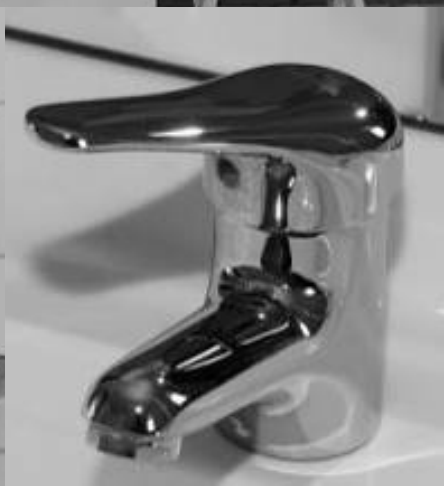
Objective:

- To identify the best (most cost effective and easy to implement) packages and combinations of retrofit options to significantly improve the standard of sustainability of average New Zealand homes.
- To develop a cost benefit analysis at a house level for a range of retrofit technologies in the areas of energy, water, IEQ and waste.

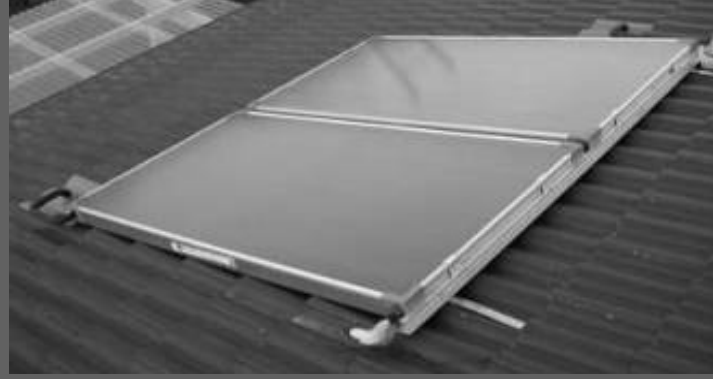
NOW Home® Renovation Project –key learnings

- Interventions which don't require Building Consent should be prioritised and form the core of a "standard" retrofit package:
  - Current basic retrofit measures (draught stopping, CFLs, polythene on ground)
  - **Insulation** to "**Best**" standard in code in ceiling and underfloor
  - Mechanical **venting** kitchen and bathroom and drier vented to outside
  - **Low flow** shower head, dual flush cistern and flow restrictors on bathroom and kitchen taps

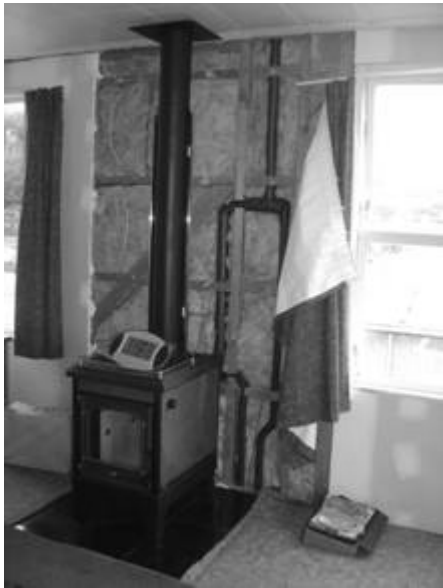




NOW Home® Renovation Project –key learnings



- Priority “higher cost” interventions might be:
  - **Insulation of walls,** if renovation planned
  - Energy efficient, carbon neutral **heating appliance** (eg pellet burner)
  - Energy efficient, low carbon **water heating** appliance (eg solar hot water, wetback)
  - **Rainwater tank** plumbed to toilet and outdoors



What Next?

- Development of procedures and packages targeted a wide range of ordinary NZ homes – high energy users, new/first home buyers, landlords
- Engagement with development community through 100 Now ® Homes –Auckland, Wellington & Christchurch
- 1000 Now Home ® Renovations & developing a range of delivery models [commercial, community, public-private partnership] for large scale retrofit to a High Standard of Sustainability

Conclusions

- New homes are easily able to be developed which use substantially less resources in their construction and operation than “standard” New Zealand homes – at no greater cost
- Waitakere and Rotorua NOW Homes® are being used to provide real life data verification of efficiencies able to be achieved
- Papakowhai NOW Homes® Renovation Project seeks to verify standard easily achievable for retrofitted homes
- Larger scale projects – Now 100 and Retrofit 1000 aim to engage wider parts of the industry and create partnerships whereby ordinary NZ homes will be able to be easily built and retrofitted to achieve a High Standard of Sustainability

Key Research Partnerships Now Home ® Renovations

Beacon
TOGETHER, CREATING TOMORROW'S HOMES

Research Providers

BRANZ

EnergySmart
preserving New Zealand's natural resources

Hosts

Porirua City Council

Suppliers (products / labour)

PinkBatts ULTRA
ULTRA THICK - ULTRA WARM

FISHER

hutt mana
CHARITABLE TRUST

GIB

Rinnai
GAS APPLIANCES
now that's smart!

FLETCHER ALUMINIUM
PREMIUM SYSTEMS
INNOVATIVE SOLUTIONS

METRO GLASSTECH

azzuro Solar

Beacon Research Funders

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