Building energy research at BRANZ

Peter D. McDowall
Who is BRANZ?

• BRANZ is an independent and impartial research, testing, consulting and information company providing resources for the building industry.

• Formed in 1969 and is owned and governed by the New Zealand Building Industry.

• 0.1% of the value of each construction project is payable to Building Research.

• Levy funding is earmarked for work of benefit to the construction industry.
New houses continue to be more airtight
Heat pumps in New Zealand

Lisa Burrough, Kay Saville-Smith (CRESA) and Andrew Pollard

- Sampled 160 NZ homes with heat pumps
- Years data of heat pump energy use and indoor temperature/humidity conditions
- Consumer reliance on Coefficient of Performance is unreliable
- Expectation that heat pump would heat entire house – only 20% had heat pump heating just one room
- Heated room on average 2.2C lower than set point – need insulation
- Large scale up take could place greater demands on electrical supply network
Sustainability of NZ new-build (stand-alone) housing stock

Roman Jaques

- Develop set of indicators quantifying the sustainability housing stock
- 14 indicators over 8 domains:
  - Energy/CO₂
  - Water
  - Indoor environment
  - Functional resilience
  - Affordability
  - Consumer demand
  - Industry capacity
  - Policy/regulation
- Data mining existing information resources, to establish a ‘Year Zero’ baseline
Household Energy End-use Project (HEEP)

N. P. Isaacs, M. Camilleri, L. Burrough, A. Pollard, K. Saville-Smith, R. Fraser, P. Rossouw, and J. Jowett

- Understanding household energy consumption patterns
- Can breakdown energy use into
  - Household type e.g. income, ethnicity, education etc.
  - Property type
  - Region
  - Seasonal
  - Time of day
  - Appliance brands/types
  - Household applications e.g. water, space heating etc.
  - Type of fuels used