

Cold Homes: Fuel Poverty or Culture of Cold

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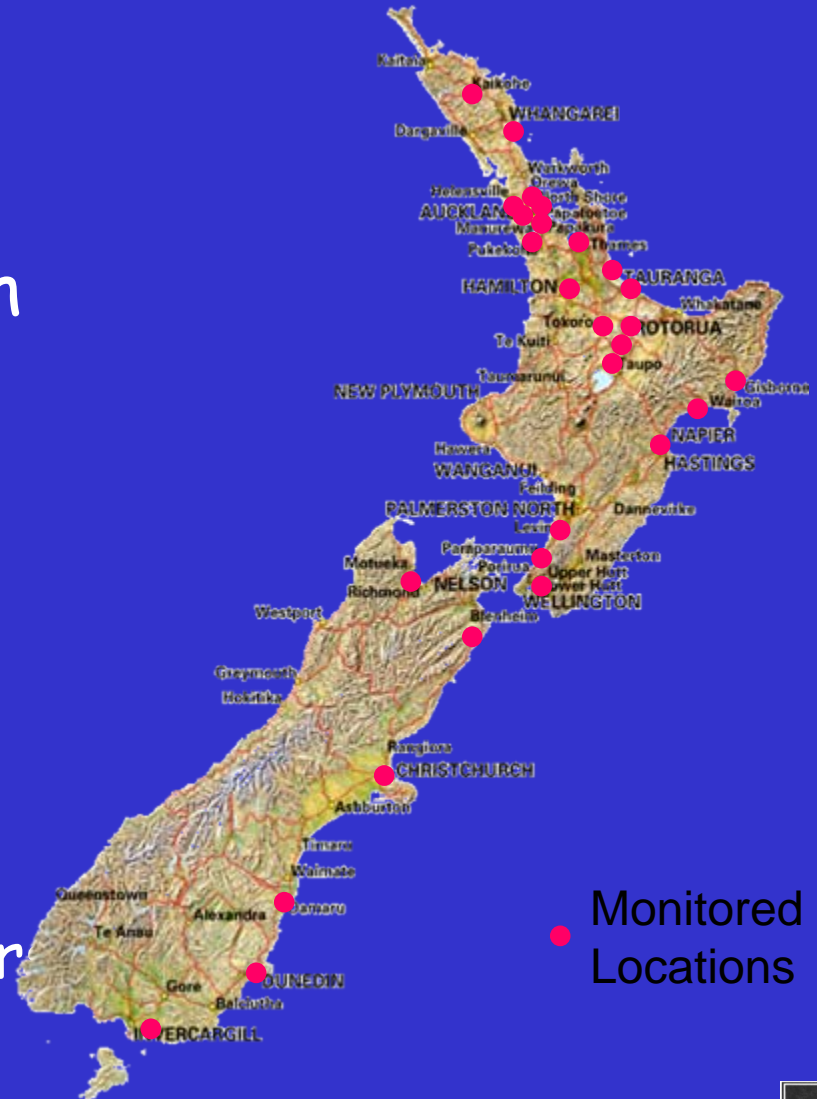


Today I want to draw on HEEP to address two questions:

- Why are New Zealand dwellings persistently cold?
- What is the connection between cold and fuel poverty?

HEEP

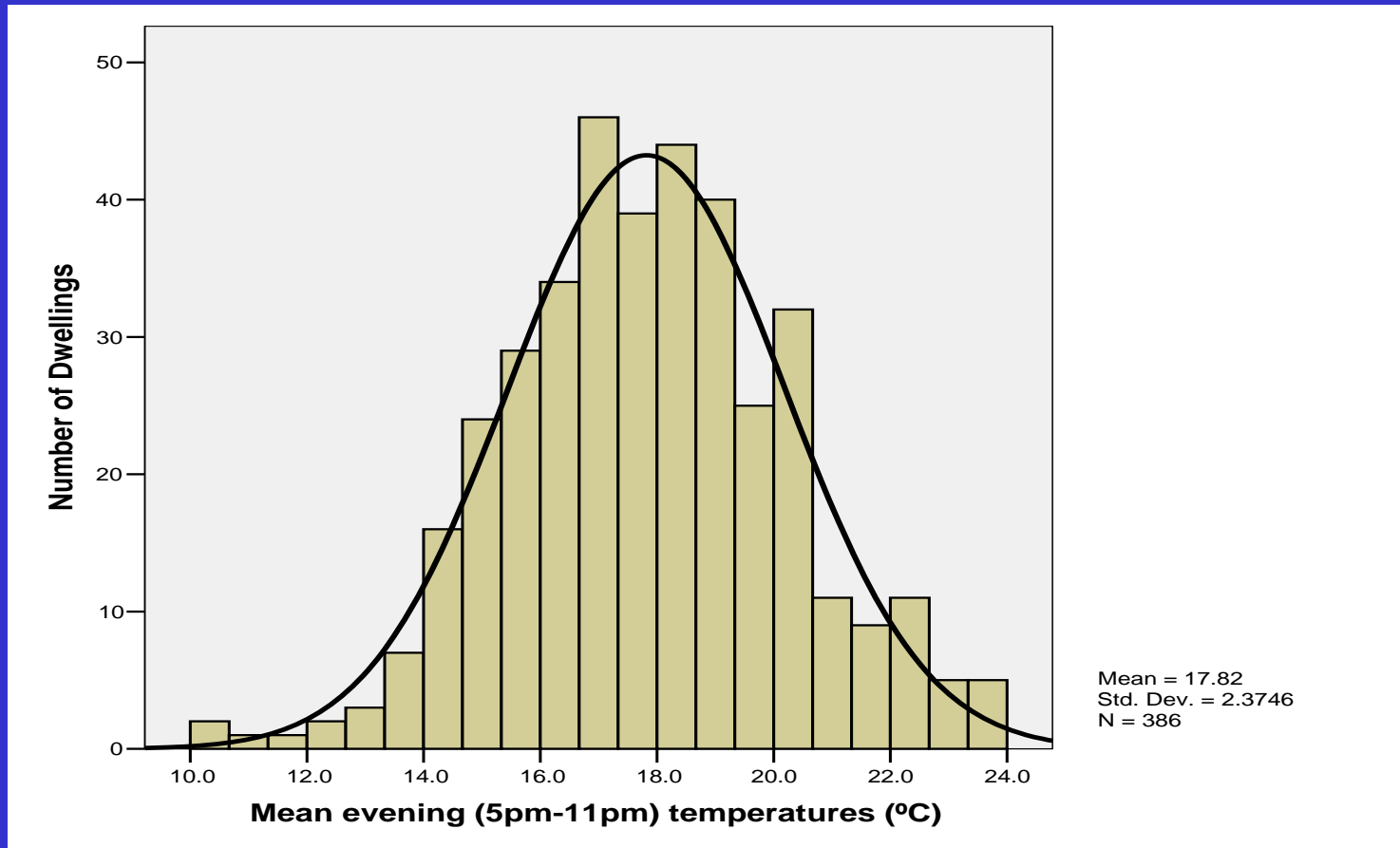
- Multi-year research
- Multi-disciplinary
- Measures
 - Fuel and energy use
 - Temperatures
 - Household characteristics
 - Household behaviour



HEEP has found:

- NZ homes are cold
- Mean winter evening living room 17.82°C
- 18% of houses exceed 20°C living room mean
- 9% of houses exceed 21°C living room mean
- 22% of houses lower than 16°C living room mean
- Bedrooms overnight average
 - Pre-1978 houses 13.2°C
 - Post-1978 houses 14.5°C

Winter Evening Living Room Average Temperature Distribution



Does it Matter?

- Temperatures lower than 16° C impair respiratory function
- Temperatures lower than 12° C generate cardiovascular strain
- Condensation, damp, mould associated with low temperatures.
- Damp and mould associated with toxic reactions, allergies, inflammatory diseases, gastroenteritis and infections
- Low temperatures associated with social exclusion and reduced household interaction

Warmth and Wellbeing

- WHO (2003) optimum indoor temperature throughout the house - 18°C - 24°C
- UK Watt Committee
 - Year round living room average 21°C
 - Year round bedroom average 18°C

Fuel Poverty: Lowest Incomes Over-represented in Coldest Homes

Household Income Quintile	% Living rooms Mean Winter Evening $<16^{\circ}\text{C}$	% Living rooms Mean Winter Evening $>16^{\circ}\text{C}$
Quintile 1 (Lowest)	32.4%	18.1%
Quintile 2	25.7%	22.9%
Quintile 3	9.5%	19.6%
Quintile 4	17.6%	22.9%
Quintile 5 (Highest)	14.9%	16.6%
Total	100%	100%

Spending to Stay Cold

- HEEP uniquely provides direct measurement of fuel poverty
- HEEP shows:
 - Low income households spend higher proportions of income on heating
 - Higher proportionate incomes does not assure low income households of warm houses or even warm living rooms.

Winter Energy Expenditure

Household Income Quintile	% Households Expending <10% Monthly Income	% Households Expending >10% Monthly Income
Quintile 1 (Lowest)	72%	28%
Quintile 2	97%	3%
Quintile 3	100%	0%
Quintile 4	100%	0%
Quintile 5 (Highest)	100%	0%

Mean Living Room Winter Evening
Temperature of Households Spending
Less than 10% of Monthly Income is

1.3° C Higher than

Mean Living Room Winter Evening
Temperature of Households Spending
More than 10% of Monthly Income

Households Vulnerable to Cold

- One-person households
- Tenants
- Urban areas
- Reliant on:
 - Open fire (wood or coal)
 - Portable Electric
 - Portable LPG
 - Fixed electric

Households and Warmth

- Users of:

➤ Gas	$18.0 \pm 0.5 \text{ }^{\circ}\text{C}$
➤ Heat pump (elect)	$18.0 \pm 0.4 \text{ }^{\circ}\text{C}$
➤ Central gas	$18.3 \pm 0.7 \text{ }^{\circ}\text{C}$
➤ Enclosed solid fuel (wood)	$18.9 \pm 0.2 \text{ }^{\circ}\text{C}$

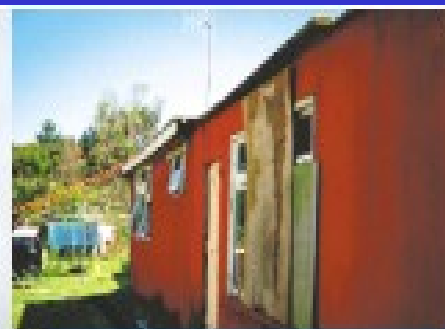
This is not simply about income

- Fuel use and appliances matter – wood burners
- Housing quality matters – post 1978 houses are warmer than pre-1978 houses
- Higher income people can live in poorly performing dwellings
- Poor people can live in quality housing

The Dynamics of Cold & Fuel Poverty

- Indoor cold is not caused by cold climates or low incomes
- Indoor cold occurs when building efficiency and heating systems do not deliver adequate warmth
- Low income people manage fuel poverty by significantly under heating.
- Both low and high income New Zealanders accept cold houses.

Housing of the Poor: Exposed



Housing of the Poor: Comfort and Health

