



# Household Energy End-use Project 2

EDA Conference

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# About

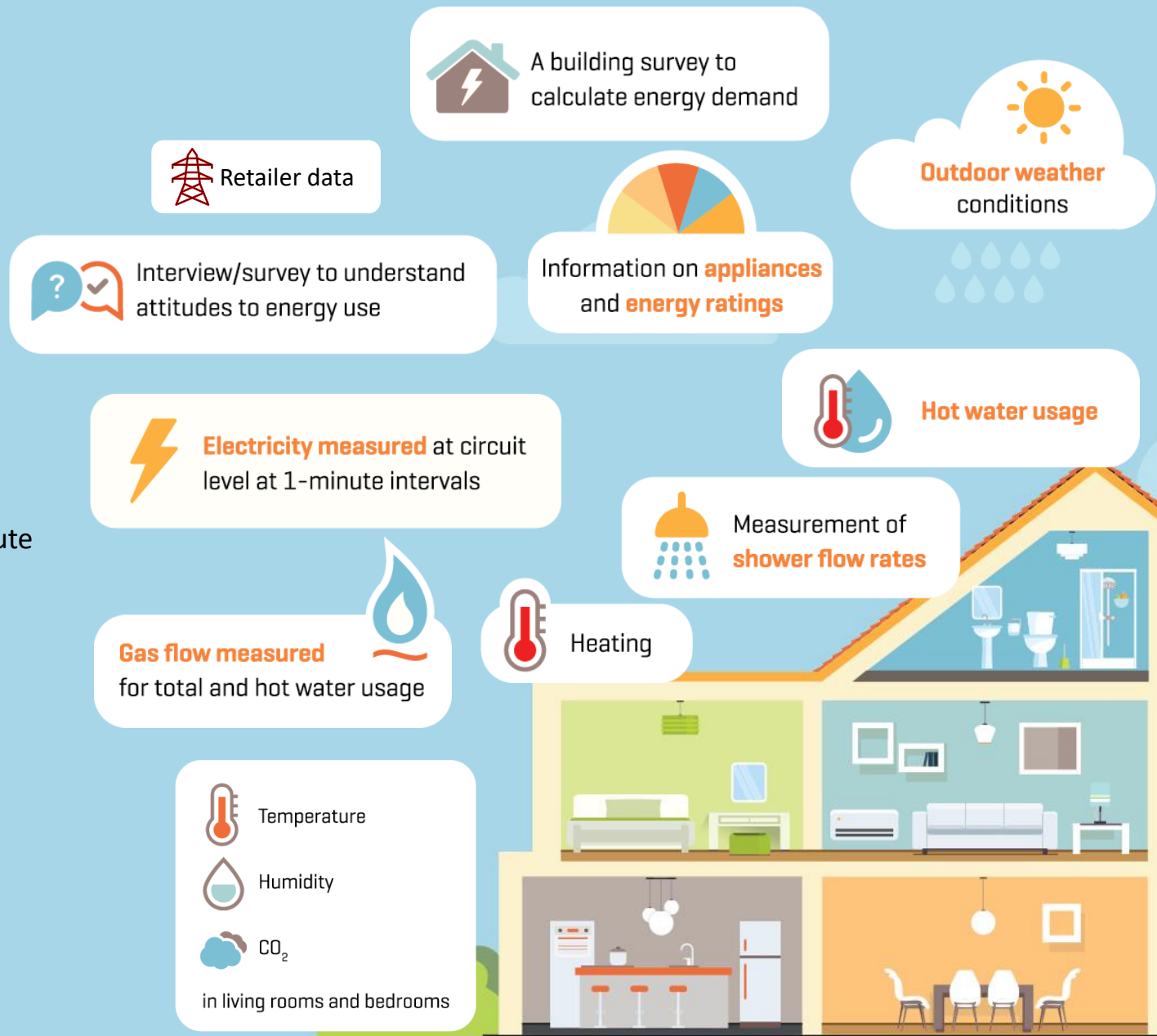
- The **H**ousehold **E**nergy **E**nd-use **P**roject #2 is a national study of **energy use and conditions** in New Zealand homes
- Last undertaken in 1995-2005 ⇒ a 20-25 year update!
- A **national** 'general population' study in partnership with Stats NZ
- Canterbury-based 'high performance' and 'new builds' study
- Led by BRANZ, funded by the **Building Research Levy**, with cofunding from **MBIE** and **NZGBC**



# HEEP2 data collection

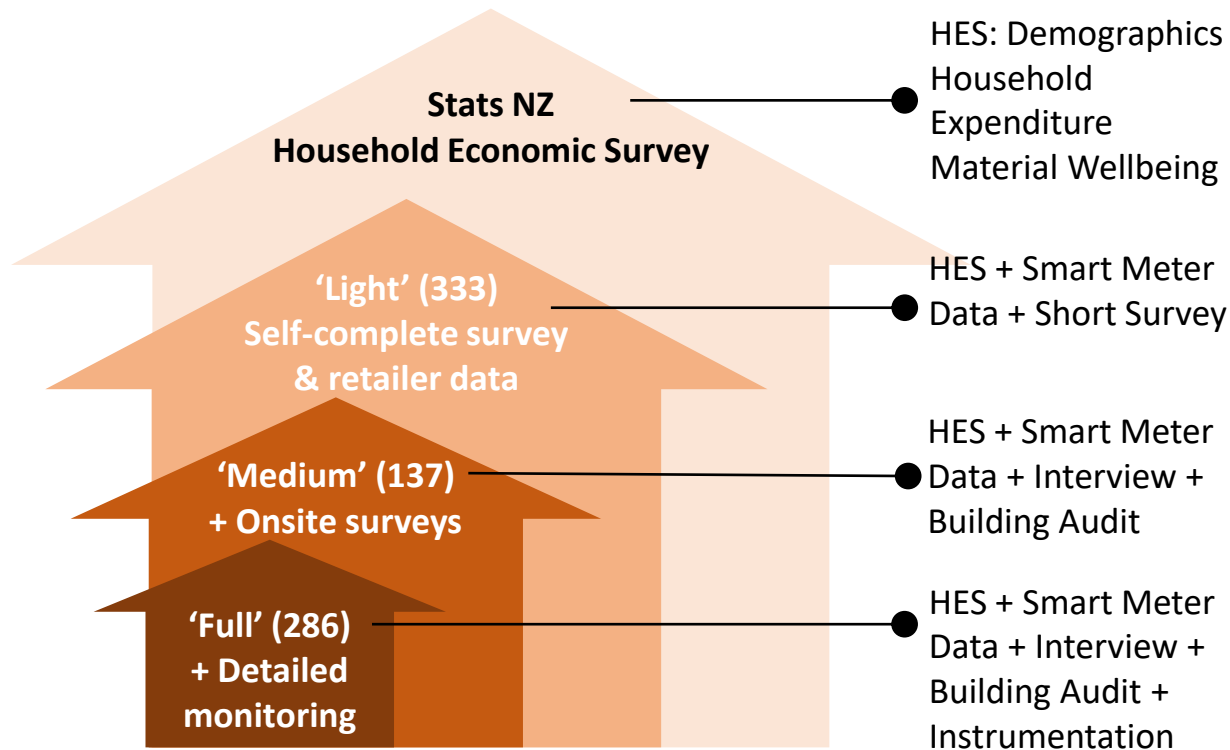
Combinations of surveys, monitoring and administrative data:

- Initial short household **survey**
- Consent to access energy **usage data** from retailer
- In-home **interview** with a household member about energy using behaviours (habits & practices) and attitudes
- Detailed **Building and Appliance Survey**
- In-home monitoring for 12 months:
  - **Indoor conditions** (temperature, relative humidity, CO<sub>2</sub>, light, atmospheric pressure) in living area and bedrooms, at 15-minute intervals
  - **Outdoor conditions** (temperature and relative humidity, 30-minute intervals)
  - Heater use (temperature sensors)
  - **Electricity use** at 1-minute intervals on up to 14 circuits
  - Granular **gas** usage (pulse counter + meter)
  - **Hot water** draw off (thermocouples at inlet and outlet)
- **Exit** survey to record if anything significant has changed with the dwelling or household over the monitoring period



# HEEP2 data collection sample structure

- Nested sample approach to National Study, with varying levels of data collection ('Full', 'Medium' and 'Light').

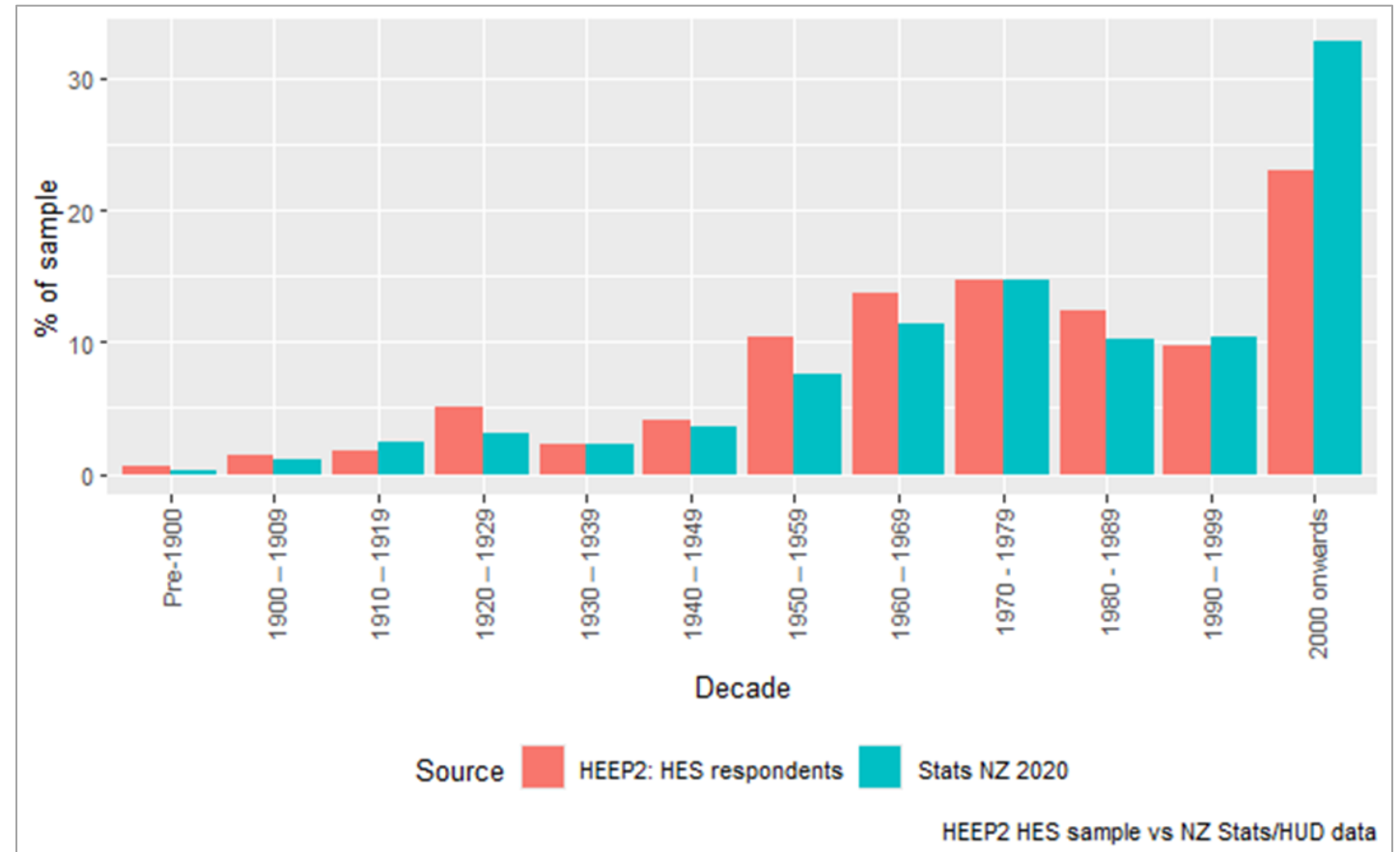


**'High Performance' & 'New Build' (43)**  
Recruited separately;  
Canterbury only.  
Same data collection as the national 'Full' sample.



# What do we know so far about the sample?

- Reasonable representation of:
  - Regions
  - Area level deprivation index
  - Dwelling type (stand-alone, joined etc)
  - Dwelling age
- Very few rentals in all sample (recruitment and consent challenges)



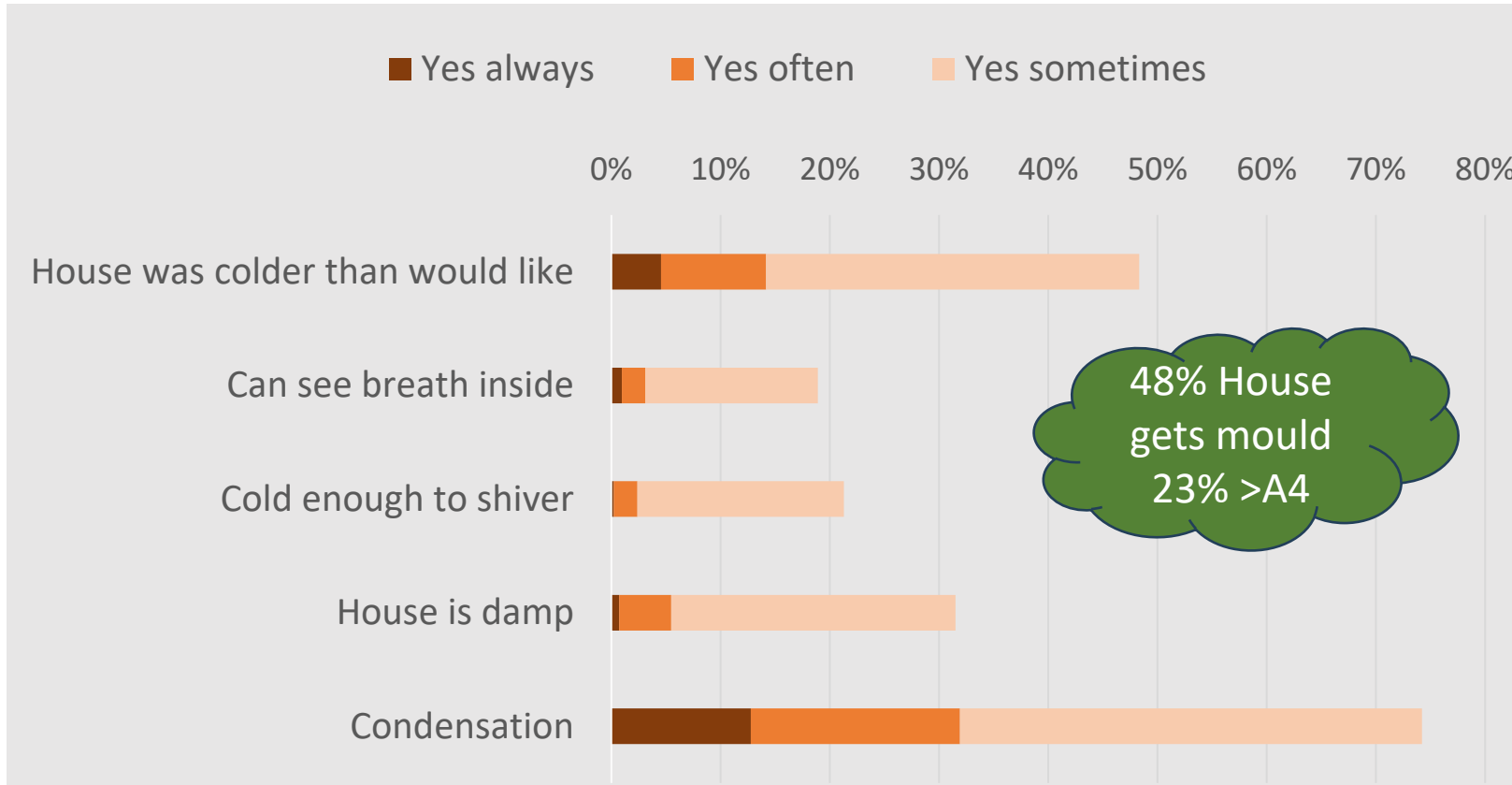
# Insights from in-home occupant interview

- Completed for Full, Medium (and HighP) samples
- Detailed face-to-face interview with a household occupant

**NOTE: Results not final – indicative for discussion**



# Comfort in winter



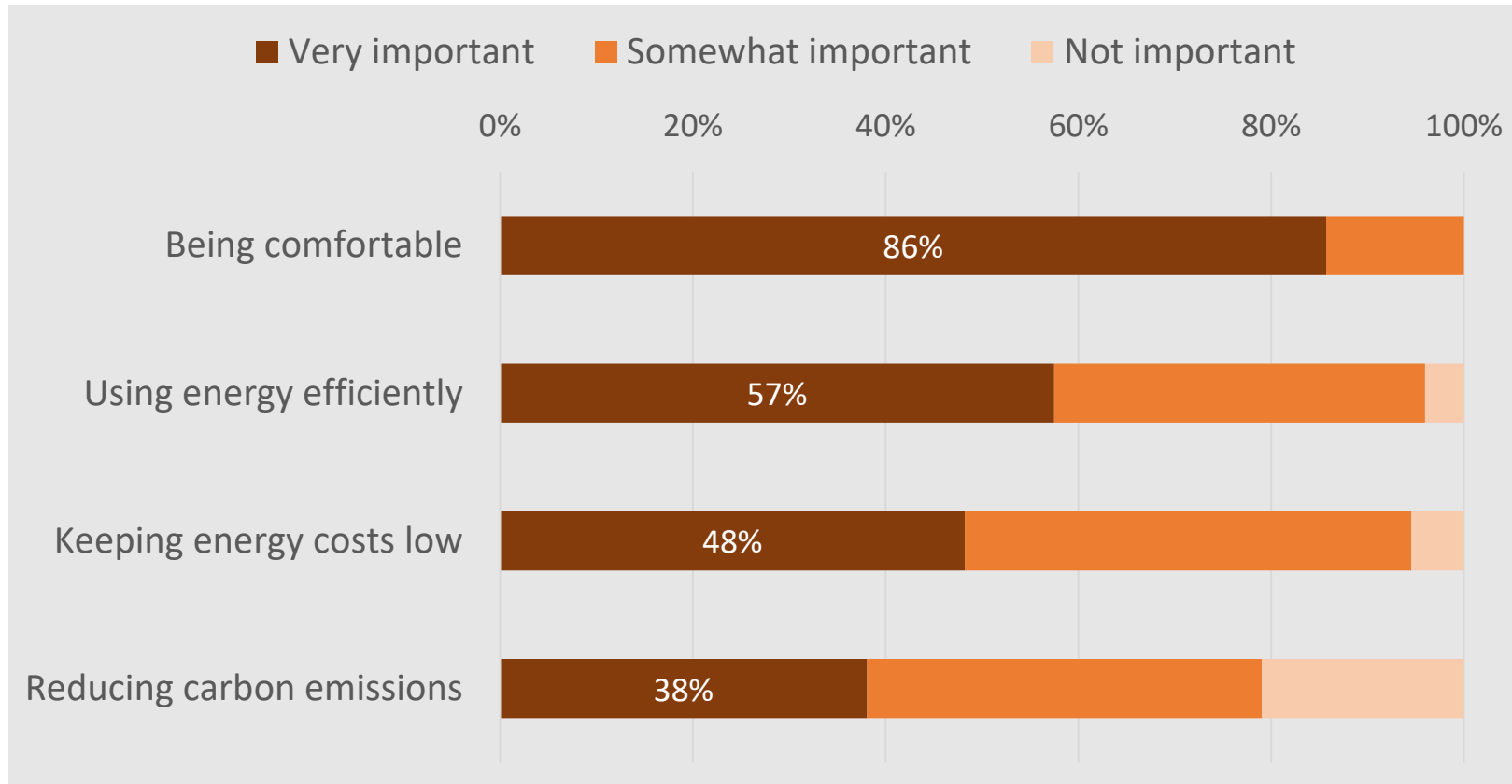
## High Performance & New Builds

- Mostly 'no' to all categories
- Except condensation: reported in ~3/5 New Build sample

## Stats NZ General Social Survey 2018:

- Colder than would like: 45%
- See breath: 13%
- House damp: 27%
- House is mouldy: 30% -> 37% >A4

# What's important?

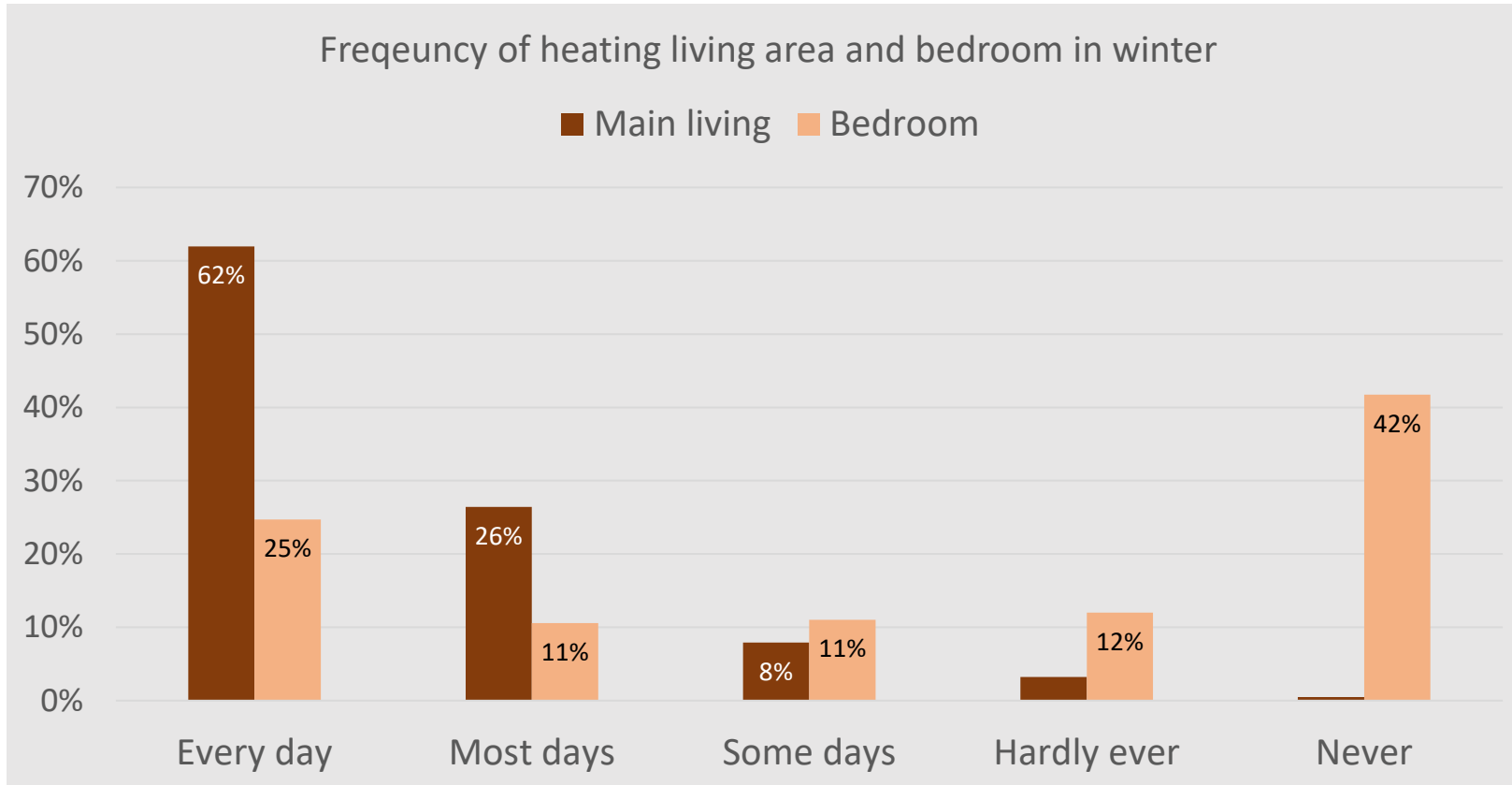


## ***High Performance & New Builds***

- *NBs similar to national sample*
- *HighP same order but greater importance on all factors*



# Heating behaviours



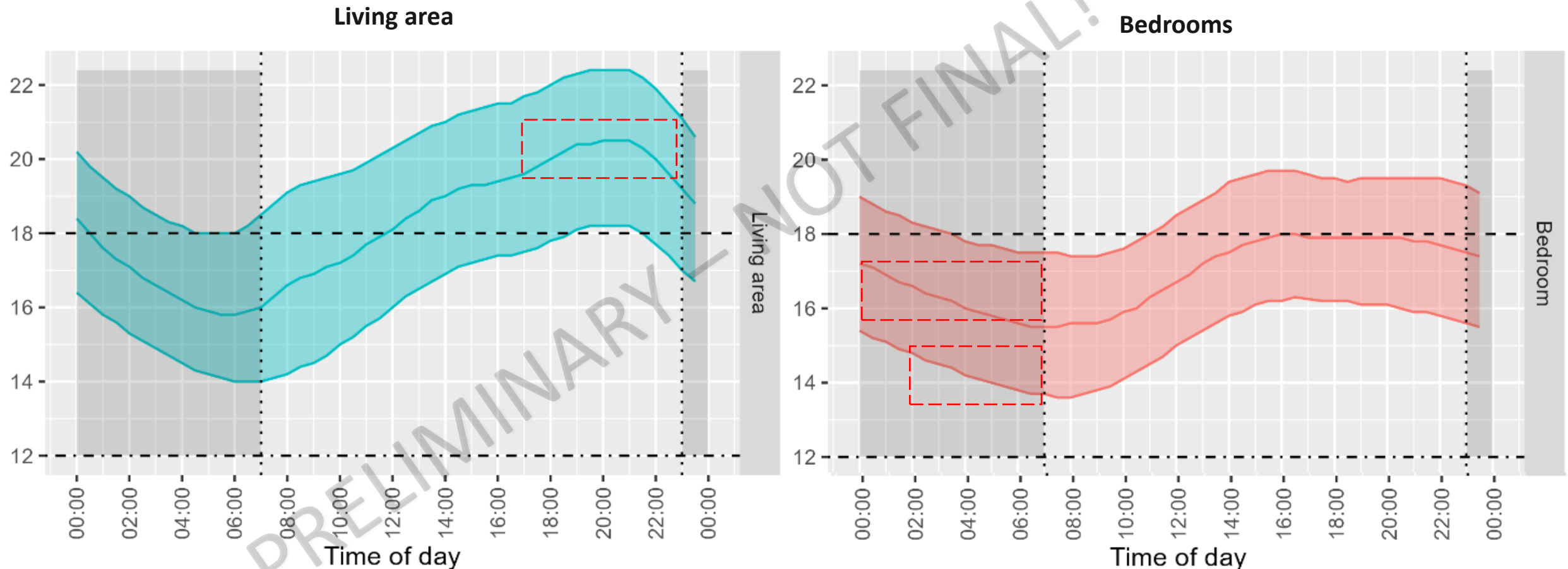
## Appliances used

- Heat pump ~60%
- Enclosed solid fuel ~25%
- Electric ~15%

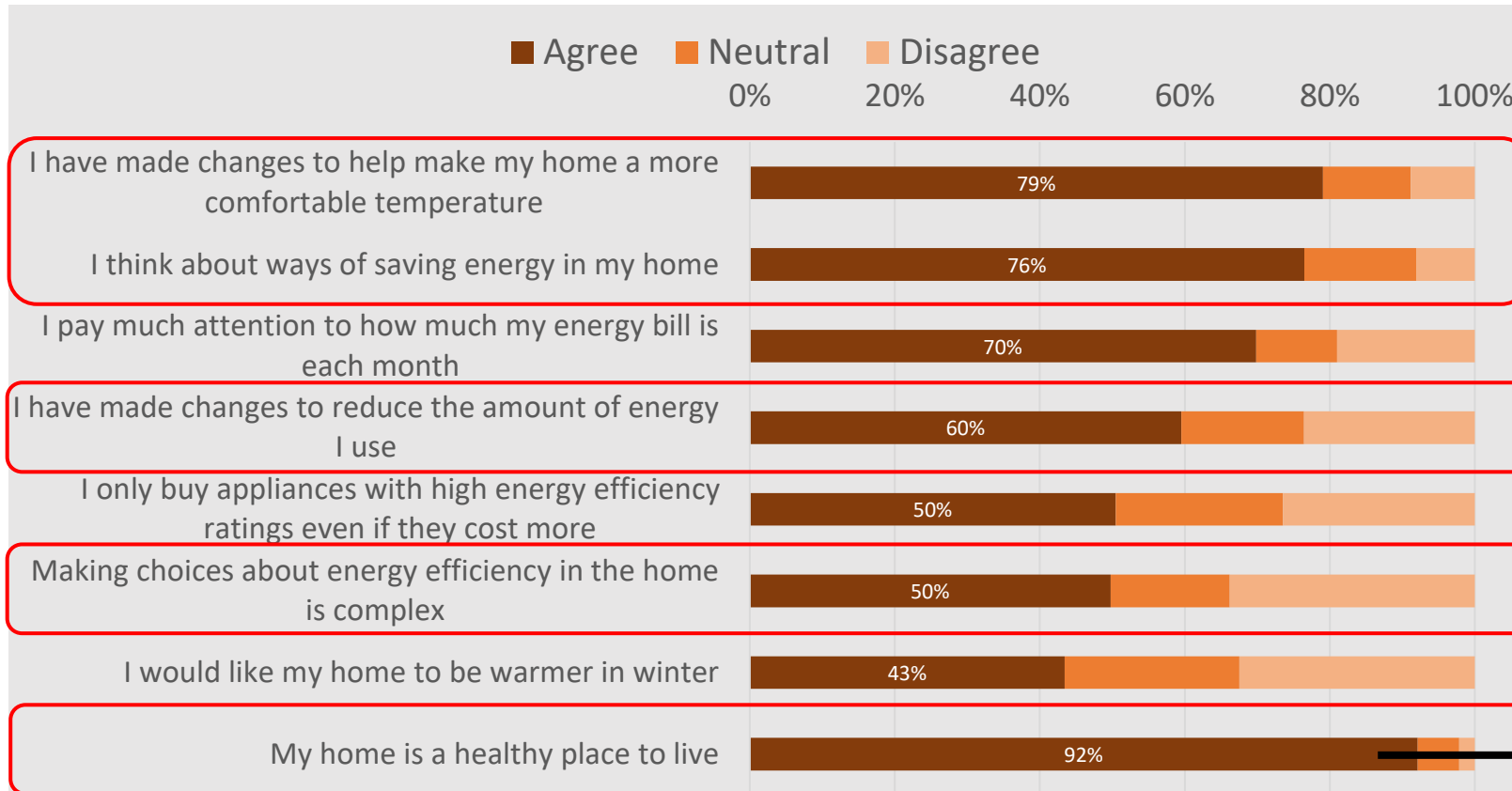
## Stats NZ General Social Survey 2018:

- Living: Every: 59% | Most: 24%
- Bedroom:
  - Every/most night: 27%
  - Never: 48%

# How warm or cold?



# Energy attitudes



Yet:

- 48% colder than would like
- 43% want home warmer
- 32% home is damp
- 48% house gets mould

# Summary and what next

- HEEP2 aims to provide up-to-date information on conditions and energy use in New Zealand homes
  - Looking at the situation today – what are we using, why, how, level of ‘service’ provided
  - To identify optimal solutions and interventions
  - To enable and motivate people to affordably create healthy home environments in ways that contribute to a low-emissions economy
- Significant amount of data being collected (complete ~Apr25):
  - 799 households have short survey + retailer data**
  - Of these 466 also have onsite household & building/appliance surveys**
  - Of these 329 also have detailed monitoring**
- First ‘topic report’ and Build article out this year... series of reports to follow
- Focus on energy use and conditions within context of sample demographics and housing performance metrics
- *[...your ideas here!...]*





# Thank you for listening

## Acknowledgements:

- BRANZ HEEP2 team (Aidan, Manfred, Andrew, Ben, Suzanne + others)
- HEEP2 Field Coordinator (Vicki C), & Field Team (Surveyors, Interviewers, Electricians, Gas fitters)
- HEEP2 participants
- Funders and cofunders (BRANZ, MBIE, NZGBC)
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