



Set up by the construction & property sector to verify the quality of buildings and reduce impacts

Our vision is healthy sustainable homes for New Zealanders

**Better places, proven**

**Andrew Eagles**

# Agenda

- 1) Context
- 2) Embodied carbon
- 3) Homes
- 4) The future



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# Part of a global movement



© YouTube/James Tyrwhitt-Drake/Elektro-L



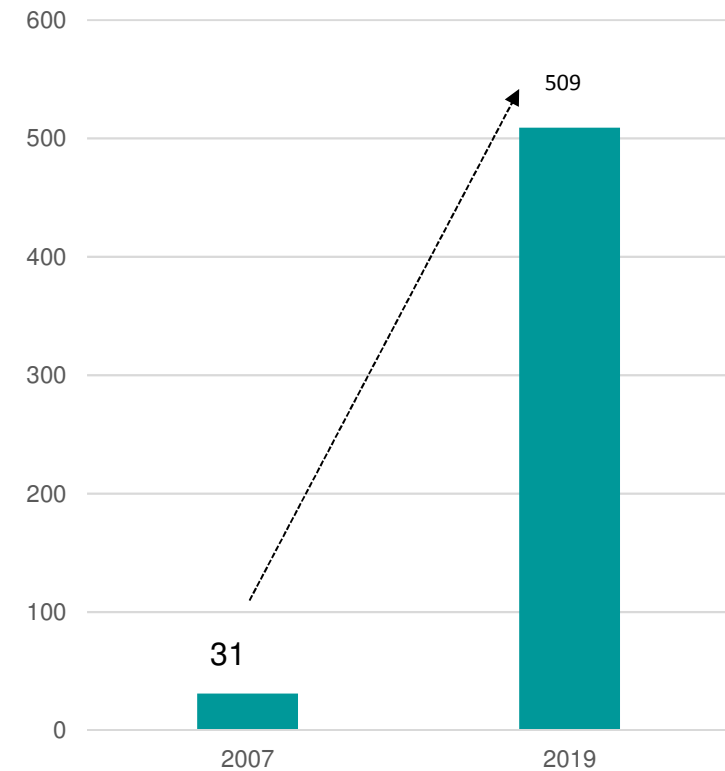
Collaborate with 74 countries UN, EU, others



# Created by the sector to drive change



From 31 members to 509



# WHY BUILD GREEN?

Kaitiakitanga: Guardianship

**The process and practices of protecting and looking after the environment - the sky, the sea, and the land.**



# Drivers for change

- Well being
- Climate Emergency declarations – Christchurch, Canterbury, Nelson, Auckland and others
- Zero Carbon Act
- Green Finance \$1tn to \$92tn
- Climate change adaptation – Westport - \$2m
- Corporate Social Responsibility
  - Sustainable Development Goals
  - 100 of NZ's largest companies Climate Coalition

## Corporate sponsors



A year long relationship to drive change





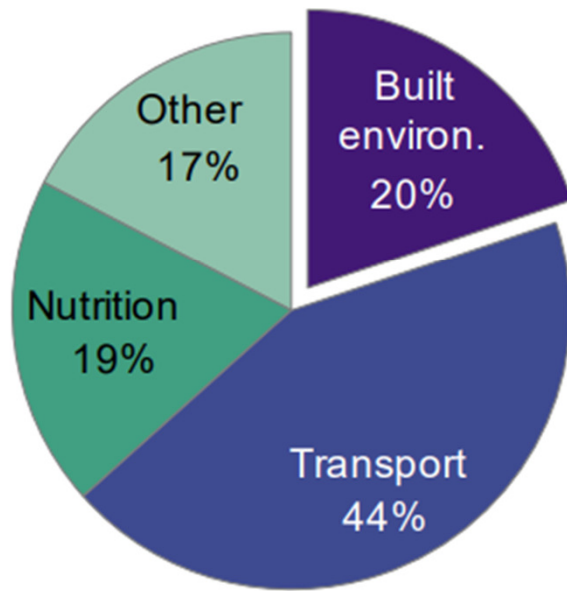
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# NZGBC 1<sup>st</sup> study on embodied carbon - 2017

(c) Consumption-oriented view  
(including international trade)



60,000 kt CO<sub>2</sub>e  
NZ's total footprint

13 t CO<sub>2</sub>e  
per person

- In NZ often buildings are thought to account for less than 5% of emissions. NZGBC Commissioned thinkstep

- Uses Ministry for Environment 2017 Green House Gas inventory

Finds that including embodied carbon built environment is 20% in the **consumption** orientated view

# NZGBC 2<sup>nd</sup> study on embodied carbon - 2018

**Under Construction – hidden emissions & untapped potential of NZ's buildings. It found**

Carbon footprint of new-build construction and renovation is 2,900 kt of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) per year – equivalent to more than 1 million passenger cars

Is possible to save 1,200 kt CO<sub>2</sub>e per year: (equivalent to taking 460,000 passenger cars off the road permanently)

Both the current emissions and the potential savings are an understatement - excludes building services and interior fit-out.

The key materials contributing to embodied GHG emissions are steel and concrete, which together contribute more than 50% of the carbon footprint of residential and non-residential construction

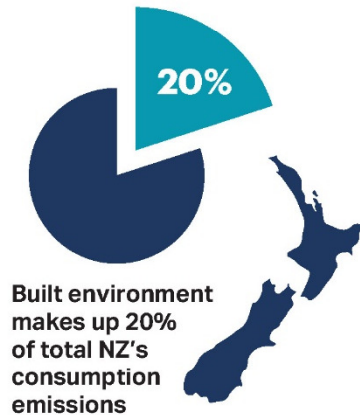
Aluminium was also very significant for non-residential construction. For residential construction, timber framing was the next biggest.

# Under Construction:

Hidden emissions and untapped potential of buildings for New Zealand's 2050 zero carbon goal



thinkstep

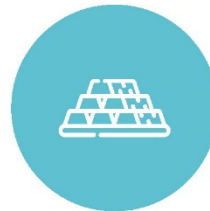


## Short term (2025)



### CONCRETE:

replace 30% of cement with SCM



### ALUMINIUM:

source from renewable energy smelters e.g. Tiwai Point



### STEEL:

optimise steel beam

## Long term (2050)

Short term improvements plus:



### CEMENT:

replace further 40% of coal with alternative fuels



### STEEL:

replace coking coal with bio-charcoal or use hydrogen technology

Improvements to other materials, e.g. plasterboard, paint and timber. The results include plasterboard only.

## Embodied carbon over building lifecycle



AVERAGE NEW 200 M<sup>2</sup> STAND-ALONE HOUSE:

>63t CO<sub>2</sub>e embodied

BY 2025:  
5%  
reduction

BY 2050:  
29%  
reduction



AVERAGE NEW 900 M<sup>2</sup> NON-RESIDENTIAL BUILDING:

>450t CO<sub>2</sub>e embodied

BY 2025:  
19%  
reduction

BY 2050:  
51%  
reduction



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# The building code?

*“The New Zealand Building Code is **below the standards required** of most IEA countries with comparable climates”*

-- International Energy Agency, Energy Policies of IEA Countries 2017 Review, 2017

*“Government should consider modernising the Building Code; it’s **standards are less stringent** than those of many OECD countries”*







-- OECD, Environmental Performance Review of New Zealand 2017, 2017


*“R values required in the NZ building code are **twice as bad** as the R values required in the UK or Irish Building Codes”*

-- NZ’s Building Performance, 2017, Ara Institute, Canterbury



An inadequate building code means:

-  Low levels of insulation required
-  No requirement to reduce thermal bridges
-  Little provision for good ventilation
-  No requirement for efficient heating
-  No control of overheating
-  Nothing on water efficiency or lighting efficiency

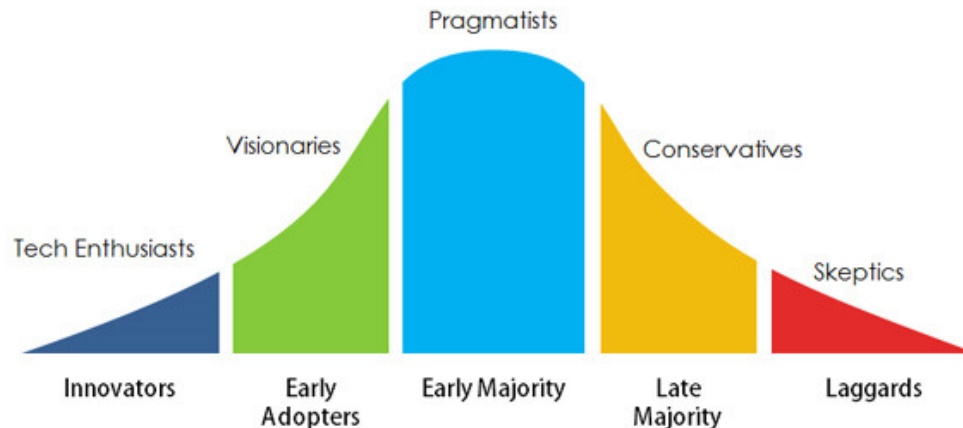


## Homes

- Homestar was rewritten in 2017 to be faster & simpler. Just as robust
- Benefits
  - Health benefits, reduced flooding damage,
  - Waste - Homestar diverts 3 tonnes from landfill per house
  - Lower carbon
  - Resilient to climate change
  - Savings of \$450 per household per year
- Costs – 2% over building code. Reality 1%
- Certification - \$200- \$500 per house or \$900 for one off



## Developers are moving to require Homestar each time



30,000 homes over 7 years

Councils are

a) adding Homestar to the LIM

b) Providing incentives





# Lower interest mortgages

For homes with Homestar certification

Healthy home package

- 1% off floating rates
- 0.7% off fixed rates

Waiver fees

Lasts for time of the mortgage. Can be reissued

Particularly useful for first home buyers





**“People always comment on the pleasant feeling in the house and are surprised to know how little we have to heat the house.”**

Graham Queenstown





“NZGBC is making sustainable healthy homes the norm, Homestar is required on all our sites, roughly 10,000 homes”

Roger Donaldson Panuku

Panuku  
Development  
Auckland  
An Auckland Council Organisation



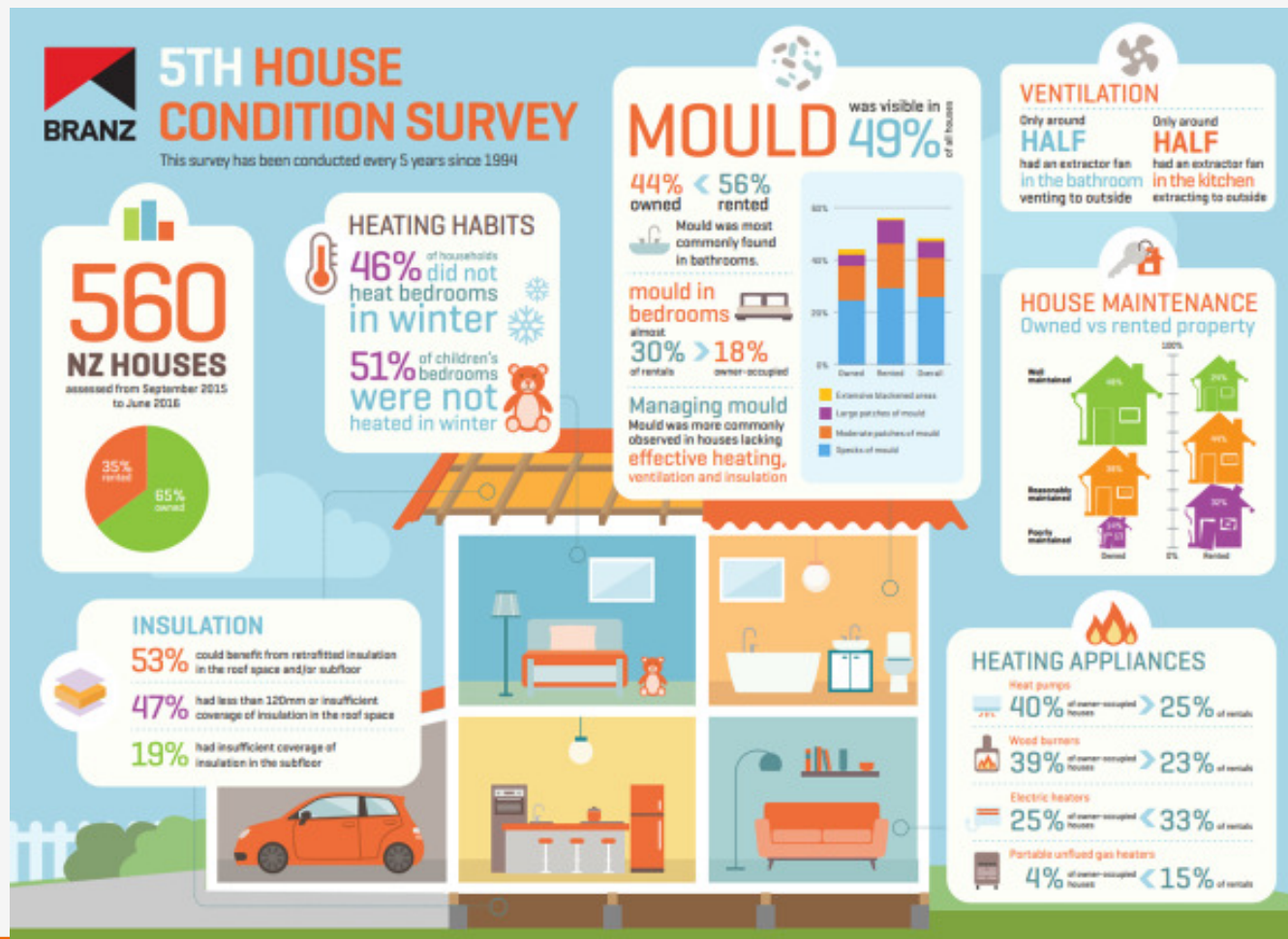
homestar®

# HOMEFIT UPDATE OUR HOMES

Over 40% of our homes are damp and mouldy



Fit for living





# CREATING A ROBUST TOOL TAKES TIME



- 18 months of development
- Public consultation
- Meetings with HPAs, EDAs, NZIBI, NZIBS, Beacon Pathway, EECA, Councils, community organisations
- Steering Group
- Technical Working Group
- Small and large scale pilots



# HOMEFIT UPDATE

## AMBITION BEHIND HOMEFIT



- Simple assessment of an existing home's
  - Heating
  - Insulation
  - Ventilation
  - Energy efficiency
  - Safety
- By an approved HomeFit® assessor then audited
- Landlords and property managers are using it to check the healthy homes standard has been met

# ROBUST COMPREHENSIVE TOOL WHICH WILL, WITH YOUR HELP, SHIFT THE MARKET



CURRENT	HomeFit
Different ratings around NZ	Nationally consistent
Tool for renters – no uptake with owners	Consistent across tenure
Not known by the public	Large national marketing campaign sustained over the year
No user friendly interactive app	Interactive smooth app

## OTHERS SUPPORTING UPTAKE







- 120,000 been to website,
- 23,000 completed free check
- National list of assessors
- Good installers listed to assist
- Getting great feedback.
- Drive uptake to normalise healthy homes in Aotearoa

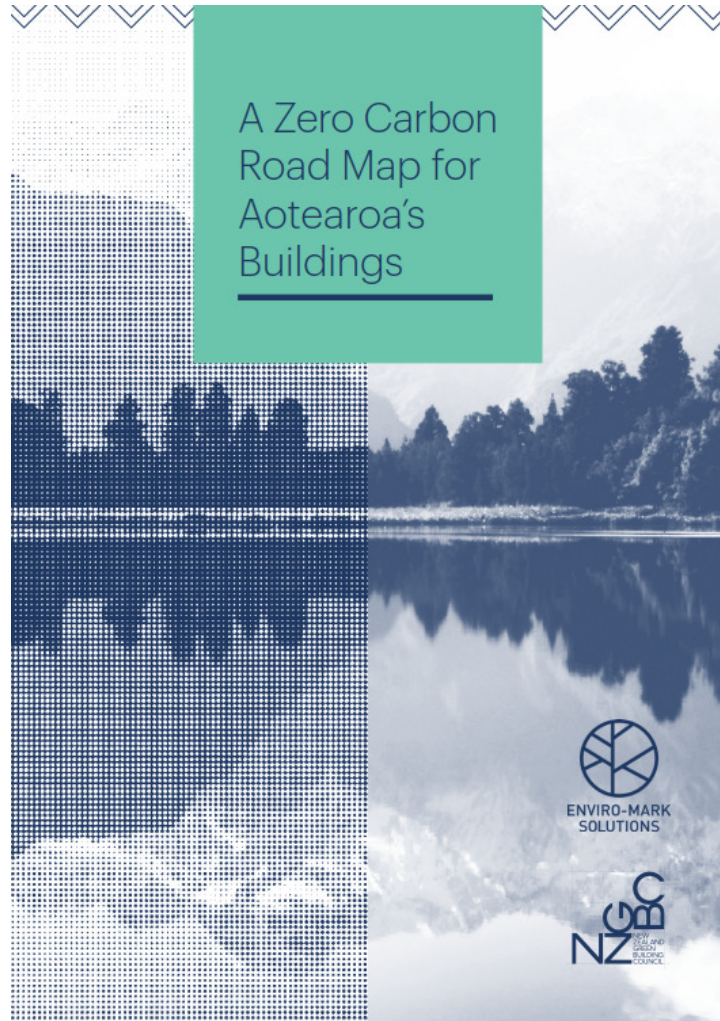


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# Roadmap



- Poor building code
- Lack of energy labels
- Fossil fuel boilers
- High embodied carbon
- Peak electricity demand
- Lack of skills
- Lack of good energy benchmarks

# A Zero Carbon Road Map for Aotearoa's Buildings



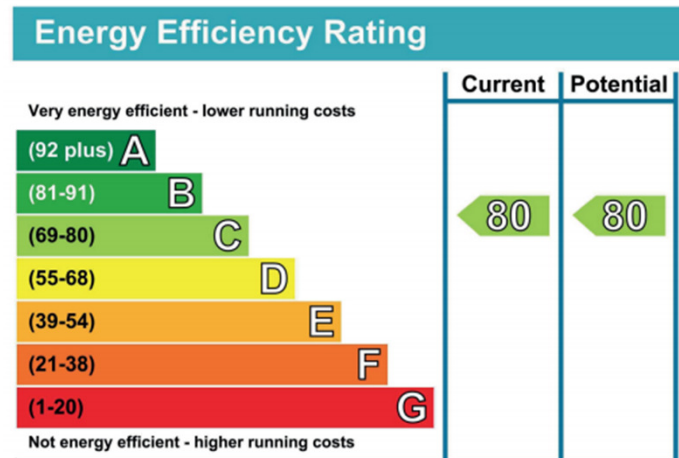
# What we're asking Government to do

- Must set a 10-year trajectory to ensure new buildings are zero energy under the Building Code by 2030.
- Begin to phase out fossil fuels from building code from 2026.
- Large projects – reduce embodied carbon now
- Include embodied carbon in Building Code from 2026



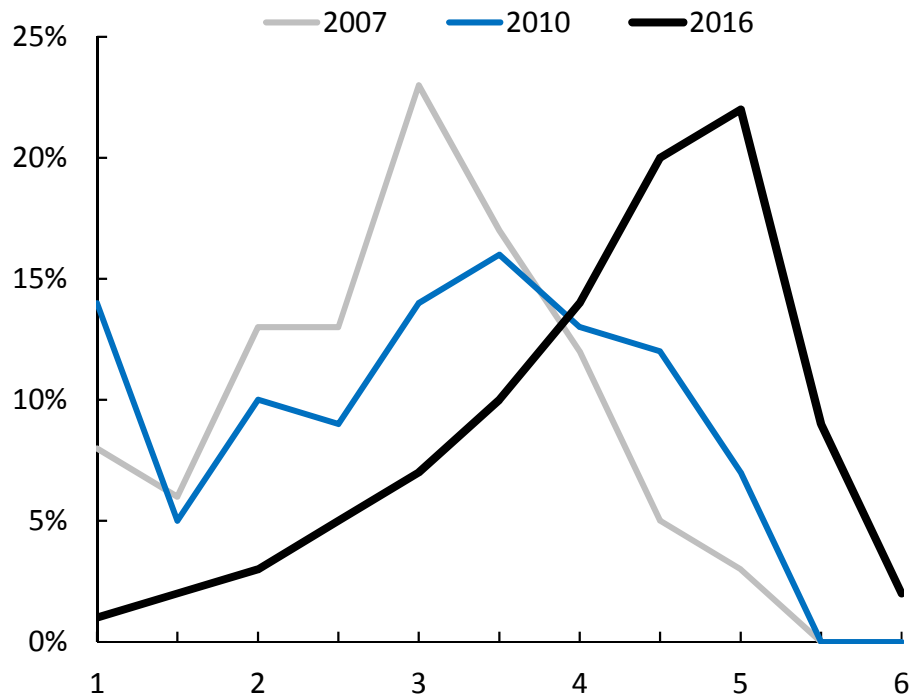
# What we're asking Government to do

- Must require energy-efficiency labelling on existing buildings (residential and non-residential of more than 1,000m<sup>2</sup>) when they are sold or leased by 2024.

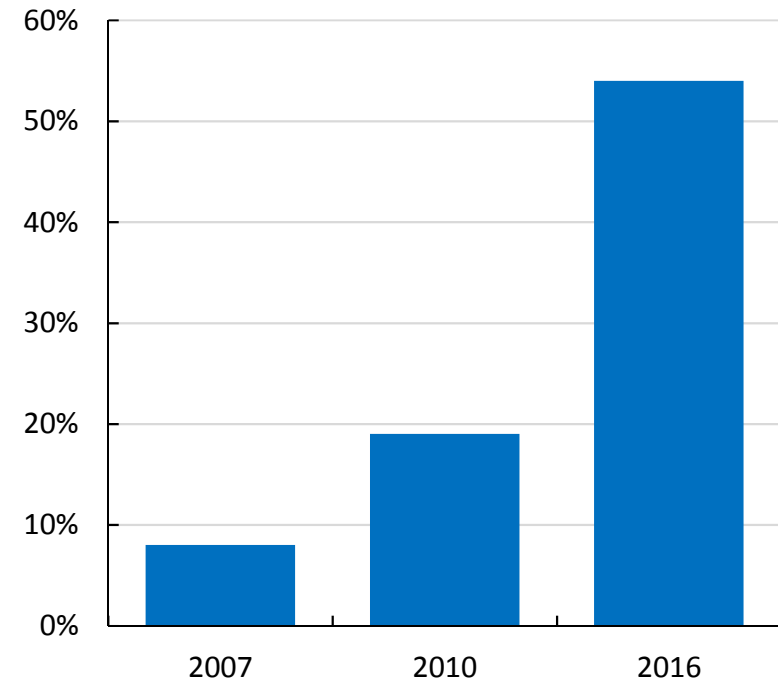


# Labels transform markets

Australia office distribution of energy ratings



Australia office share of 4+ energy ratings



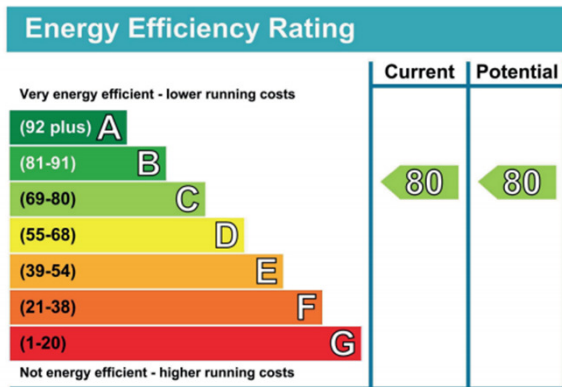
## NABERSNZ delivered

- benefits to Australia of **\$750 million**
- energy savings enough to power **400,000 homes**



# Potential to mainstream in NZ

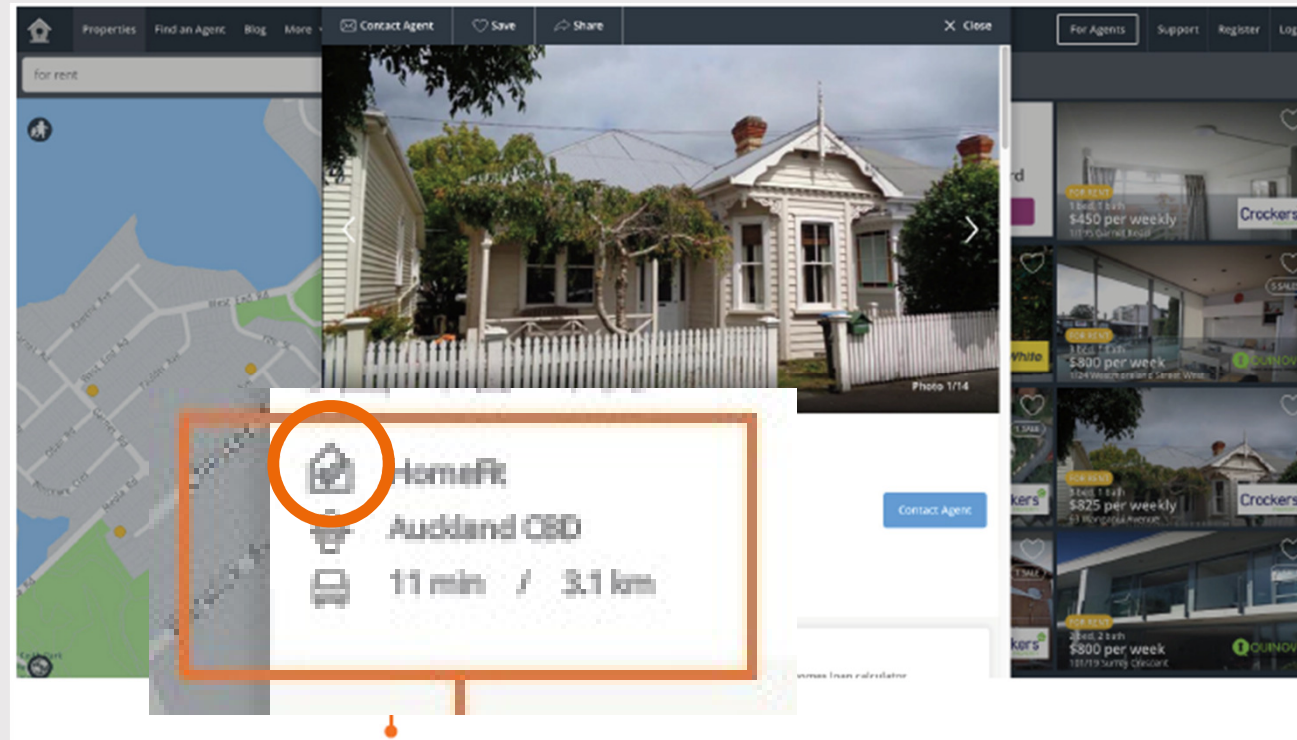
- Green rating trustmark to be on real estate websites - on Trademe, Oneroof, realestate.co.nz, etc
- Councils are starting to put them on LIMs



# A TRUSTMARK TO SHOW MILLIONS OF KIWI'S ONLINE



Fit for living



# HOMEFIT®UPDATE VISION FOR OUR FUTURE



Fit for living

**BAYLEYS** ALTOGETHER BETTER

Find - Residential - Commercial - Rural - Your Bayleys 10271

Big Home, Great Street, Smart Opportunity

36 Watling Street, Mount Eden

**Features**

- HomeFit
- 4 bedrooms
- 2 bathrooms
- 2 car parks

Expressions of Interest Thursday, 13 September (unless sold prior)

Central prestigious	location, double grammar zone
Immaculate, sunny	northern aspect, fantastic for entertaining
Spacious open plan	kitchen, living and formal lounge

Open home

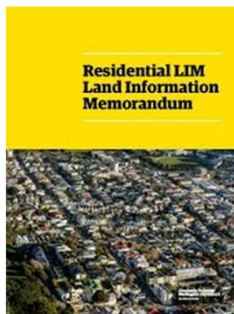
September	1:15pm to 2:00pm	Open in map
01	In 4 days	
Saturday		Add to calendar

Image 1 of 20





# RETROFIT YOUR HOME and LIMs



SOLAR PUMP FOR RAINWATER HARVESTER



TYPE 2 EV CHARGER

HOT WATER HEAT PUMP



INSULATION (CEILING AND UNDERFLOOR)

BATTERY STORAGE

LED LIGHTS

ENERGY & WATER SAVING DEVICES

supply

store

demand



SOLAR THERMAL COLLECTOR (WATER HEATING)

SOLAR PHOTOVOLTAICS

THERMAL CURTAINS AND BLINDS

GROUND VAPOUR BARRIER



## People ask – what can I do?

### **Homestar**

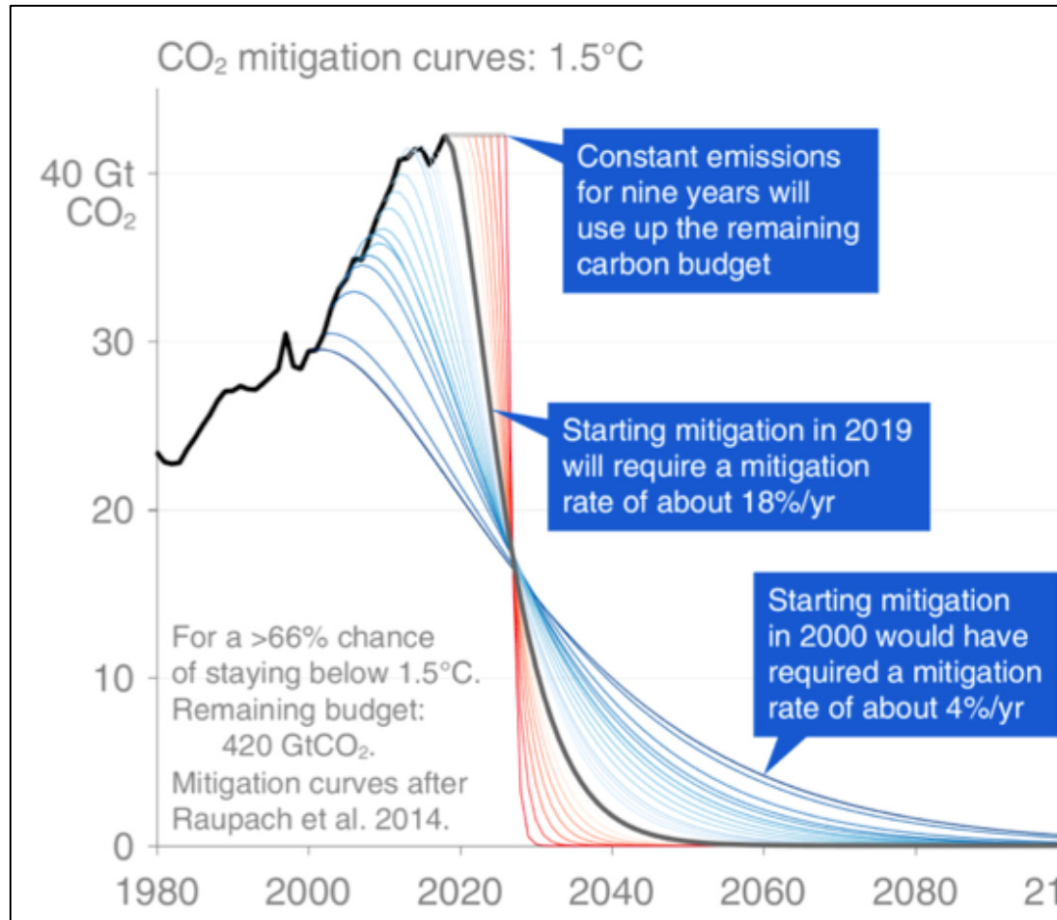
- a) check the 3 page checklist
- b) you can self certify – training is 1.5 days
- c) ask your council to provide incentives for healthy homes

### **HomeFit**

- a) Promote the free tool to the public – on council websites
- b) Use it to check against the healthy homes standard

Have a say on the standards - are your tools

## World's scientists say...



- Every sector
- Needs to take every step
- To go as far as possible to decarbonise
- As fast as possible

Change is here -Zero carbon bill, green finance, climate strikes

He waka eke noa!  
*We are in this together*



Thank you  
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