



Andrew Eagles CEO

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

The vision – New Zealanders in healthy and comfortable homes & buildings



Part of a global movement



- A member of World Green Building Council
- A not-for-profit transforming the built environment
- Green building councils have certified an area 10 times the size of Paris. Will double this in next 3 years.
- World class training and events inspire action



Corporate partners



the paint the professionals use

A year long relationship to drive change

Why build quality buildings?



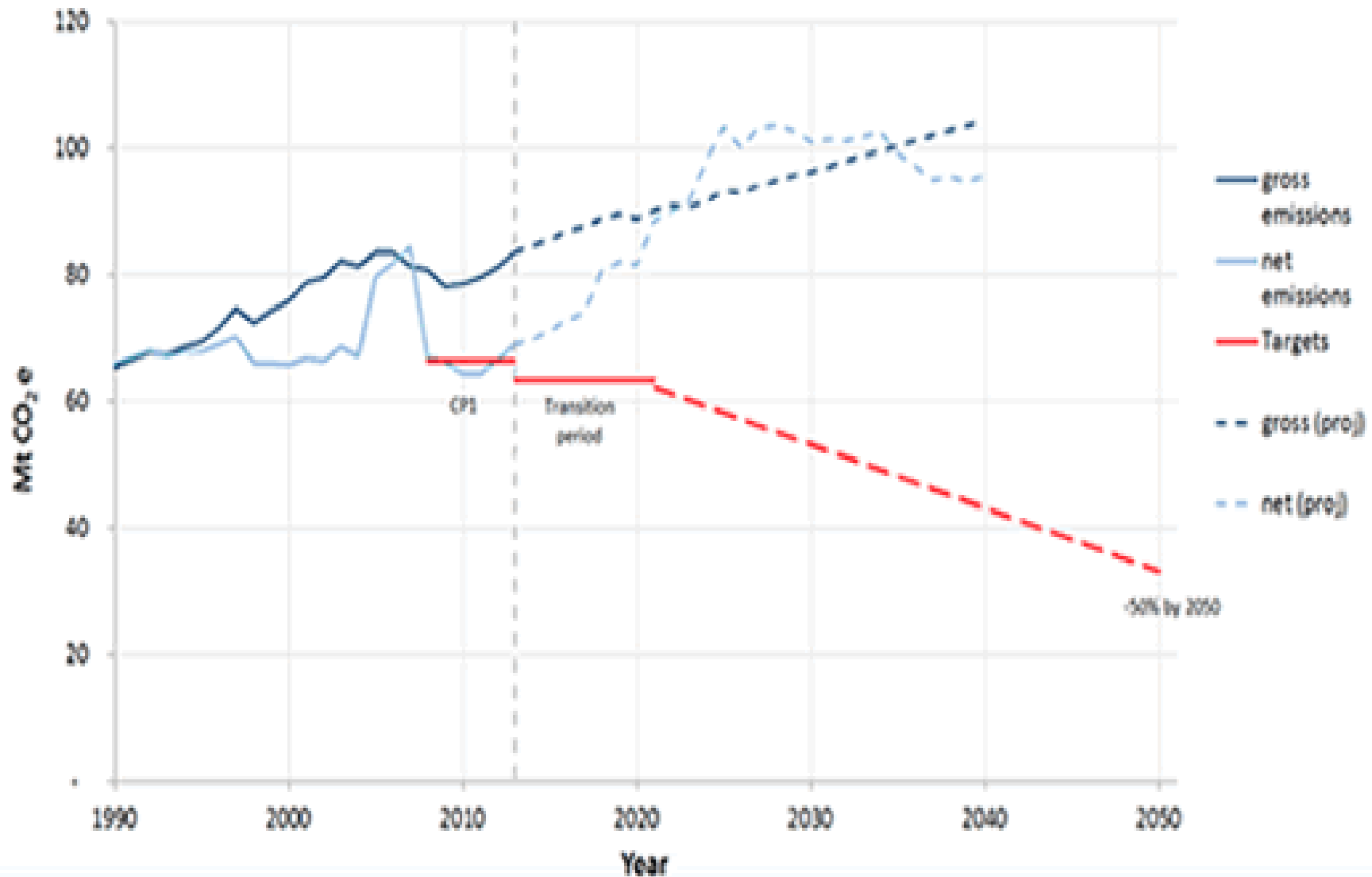
OUTSIDE VIEWS



DAYLIGHT SYSTEMS



New Zealand's projected greenhouse gas emissions against its targets



Source: morganfoundation.org.nz

Local context - quality

New Zealand has 1.6 million homes.

- 18% (250,000 homes) - no ceiling insulation or insulation in less than half the roof area
- 60% (900,000) - ceiling insulation thinner than 1978 Building Code
- 700,000 have no, or little, wall insulation
- 740,000 have no underfloor insulation

(Beacon Pathways 2013)



In New Zealand,

RESPIRATORY DISEASE:


affects **1 in 6**
Kiwis

That's

700,000
people

Costing

\$6 billion
per annum

3rd 
leading cause
of death

Indoor temperatures below 16°C contribute towards
respiratory problems.



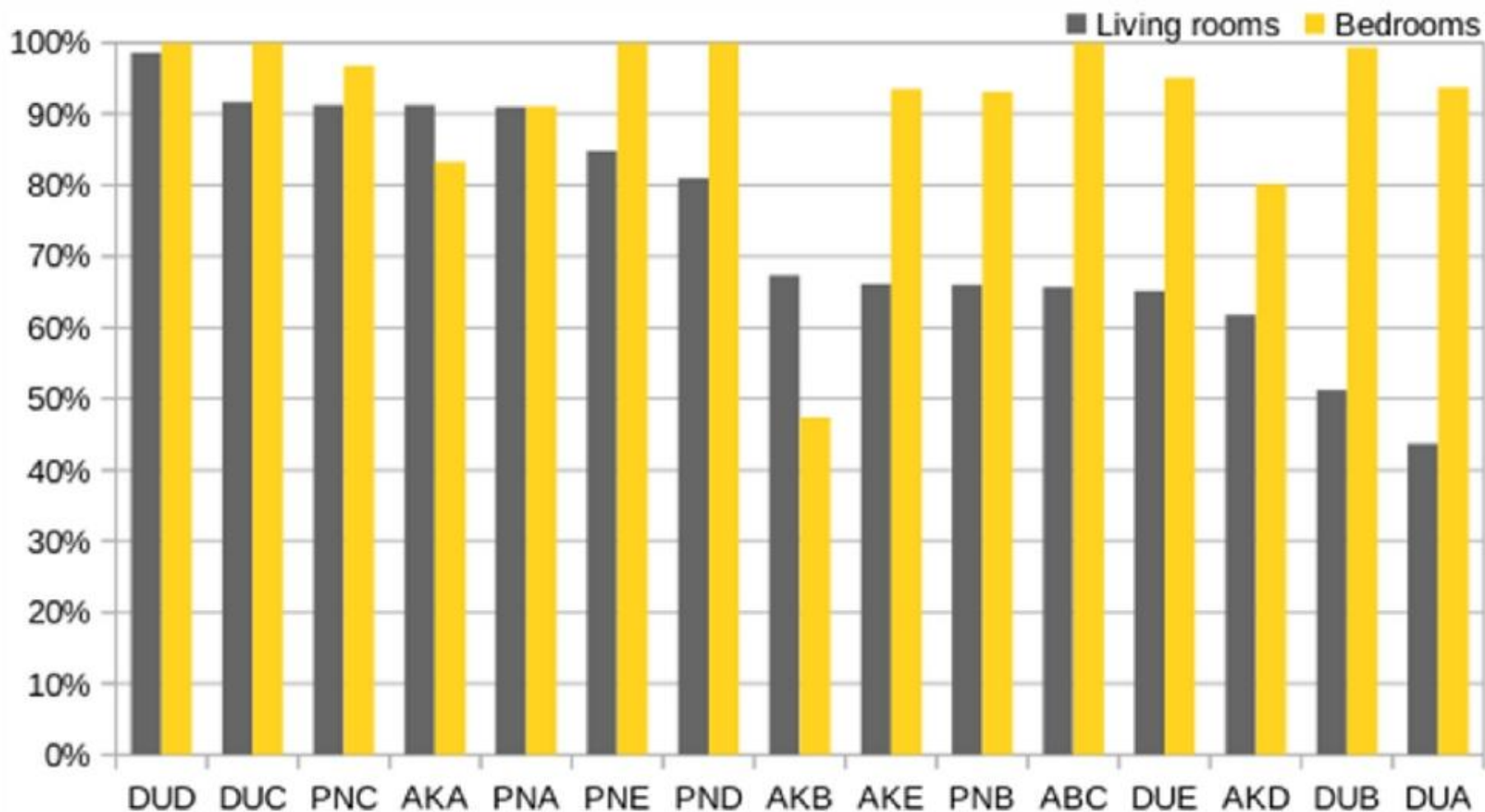


Figure 82: Percentage of time with air temperature < 19°C

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

Meanwhile, in other parts of the world...

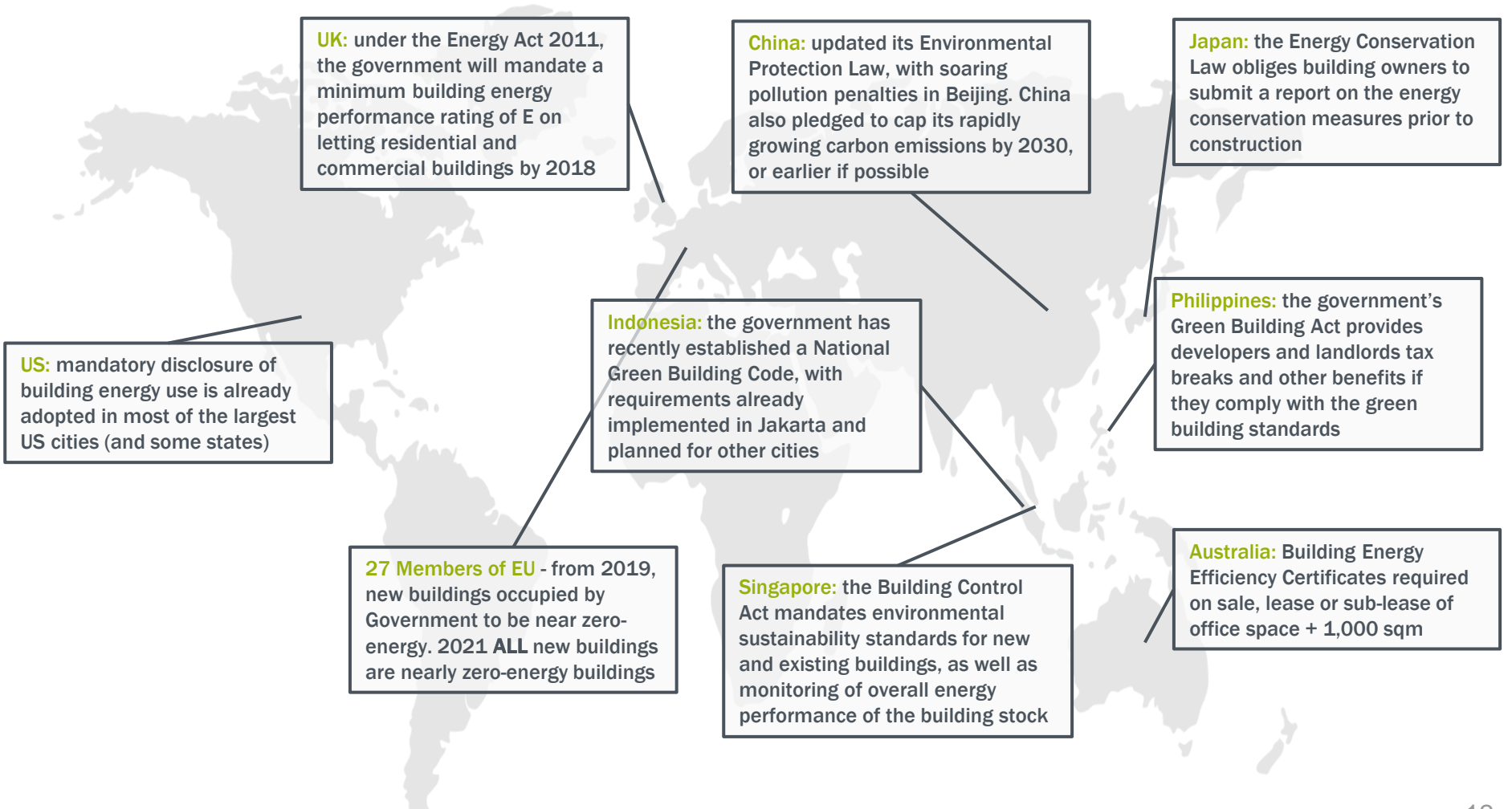


**In the EU: nearly-zero energy homes
by 2020**



In California: net zero homes by 2020

Across the world – Better buildings are being mandated



UK: under the Energy Act 2011, the government will mandate a minimum building energy performance rating of E on letting residential and commercial buildings by 2018

China: updated its Environmental Protection Law, with soaring pollution penalties in Beijing. China also pledged to cap its rapidly growing carbon emissions by 2030, or earlier if possible

Japan: the Energy Conservation Law obliges building owners to submit a report on the energy conservation measures prior to construction

US: mandatory disclosure of building energy use is already adopted in most of the largest US cities (and some states)

Indonesia: the government has recently established a National Green Building Code, with requirements already implemented in Jakarta and planned for other cities

Philippines: the government's Green Building Act provides developers and landlords tax breaks and other benefits if they comply with the green building standards

27 Members of EU - from 2019, new buildings occupied by Government to be near zero-energy. 2021 **ALL** new buildings are nearly zero-energy buildings

Singapore: the Building Control Act mandates environmental sustainability standards for new and existing buildings, as well as monitoring of overall energy performance of the building stock

Australia: Building Energy Efficiency Certificates required on sale, lease or sub-lease of office space + 1,000 sqm

What are we doing to galvanise change ?

1) Listening

- Meeting members / influencers - NZ wide
- Day of truth for Homestar
- Survey – 170 responses
- Consultation on new standards
- Aligning with other standards – Passivhaus, WELL,

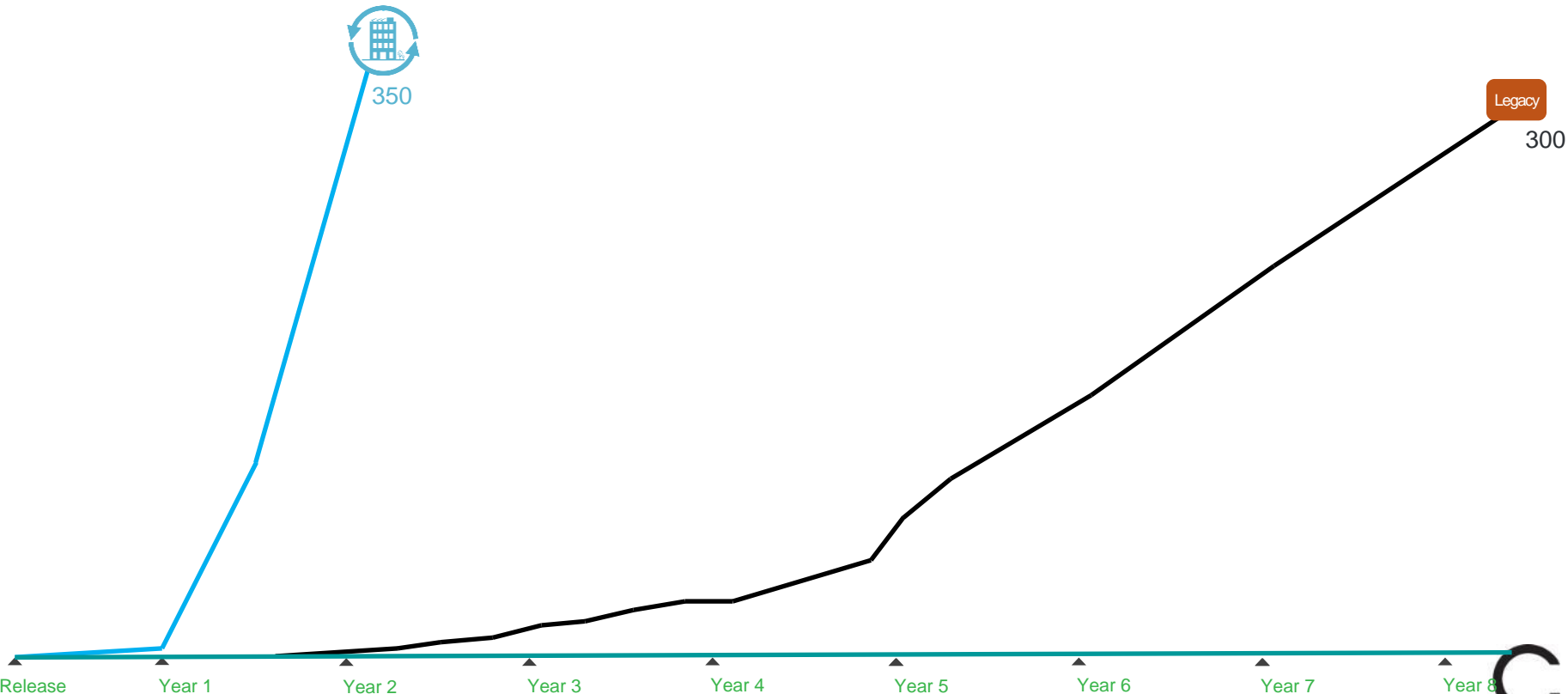
2) Influencing councils & national Government

- ✓ Development contributions (Wellington)
- ✓ Faster build consents (Hamilton)
- ✓ Faster resource consent
- ✓ Higher density or height (Queenstown)
- ✓ Rateable value



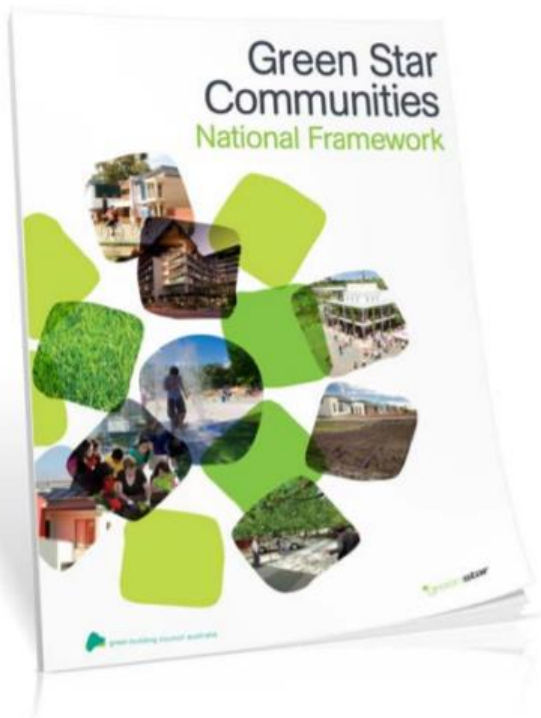
Quality is important as density increases

3a) New tools - Performance - 98% of buildings



3b) New tools - Communities

Green Star – Communities is a new framework for sustainability



5 principles that define sustainable communities

- Enhanced liveability
- Economic prosperity
- Environmental responsibility
- Design Excellence
- Strong Leadership and Governance

A residential sustainability rating tool for New Zealand...



Aim: To improve the performance and reduce the environmental impact of new and existing New Zealand homes making them warm, healthy, comfortable places to live.

Why Rating Tools?

They say they're green. But how do you know that's true ?

Would you study for four years and not graduate?

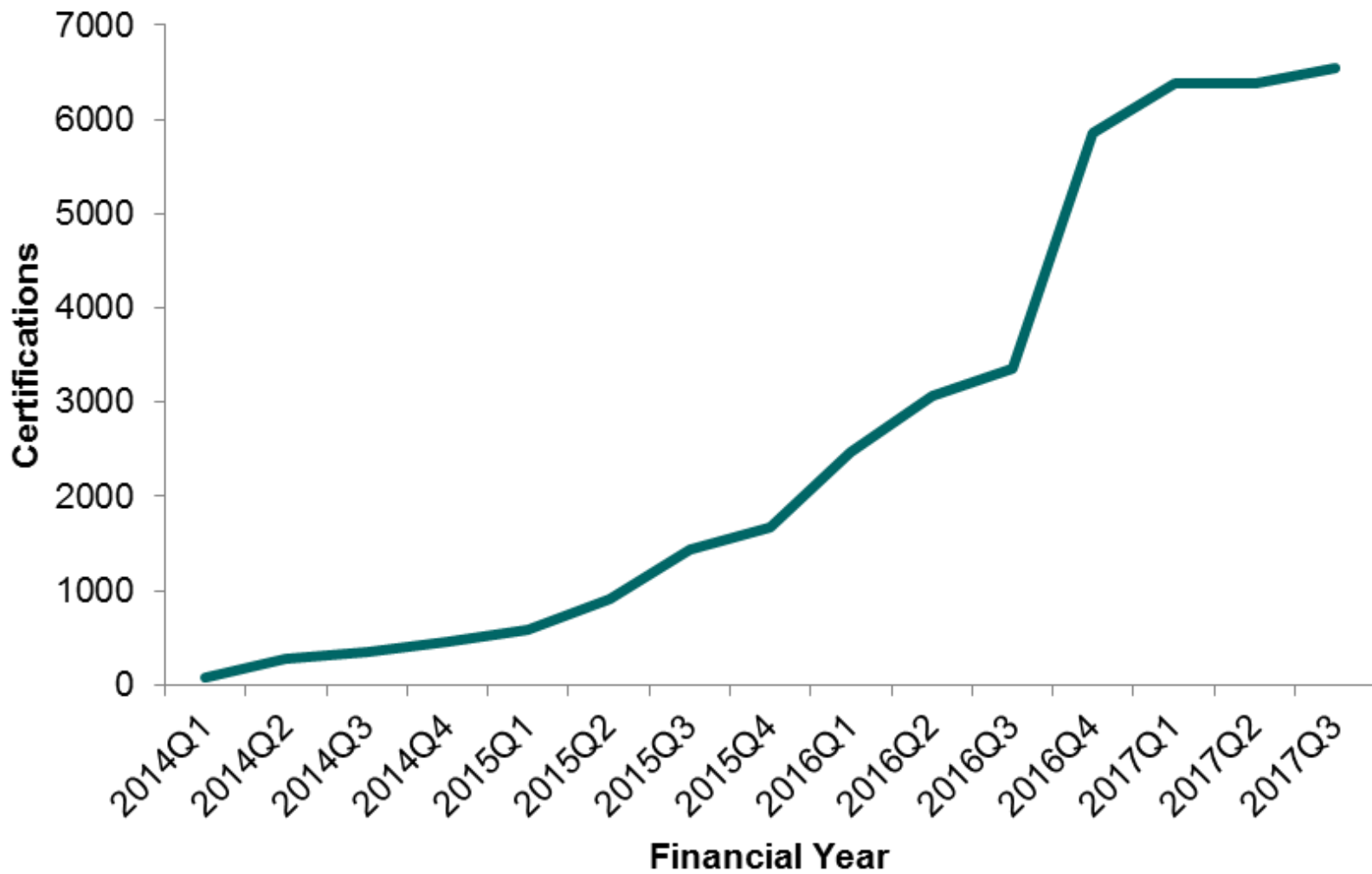


Cert.TM



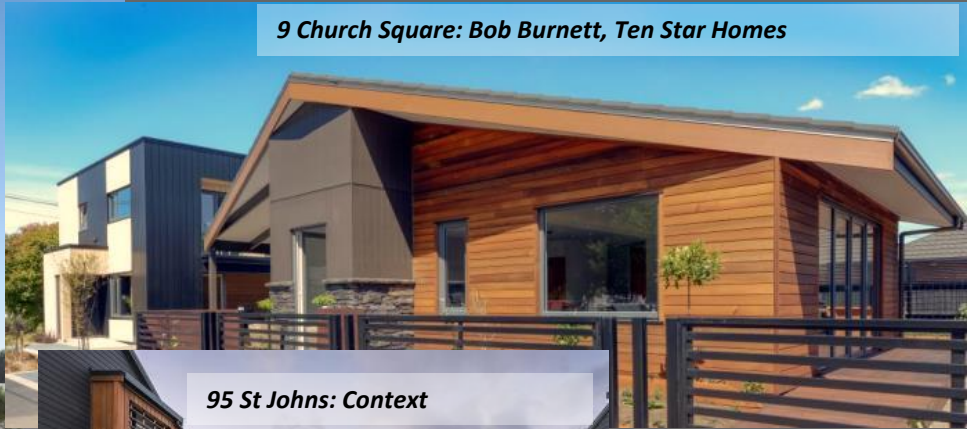
Rating tools provide an independent, third-party verified,
badge of quality

Cumulative Homestar Registrations to 23 Feb 2017





Wynyard Central



9 Church Square: Bob Burnett, Ten Star Homes



95 St Johns: Context



11 Church Square: Bob Burnett



Richardson - Howell: Signature Residential

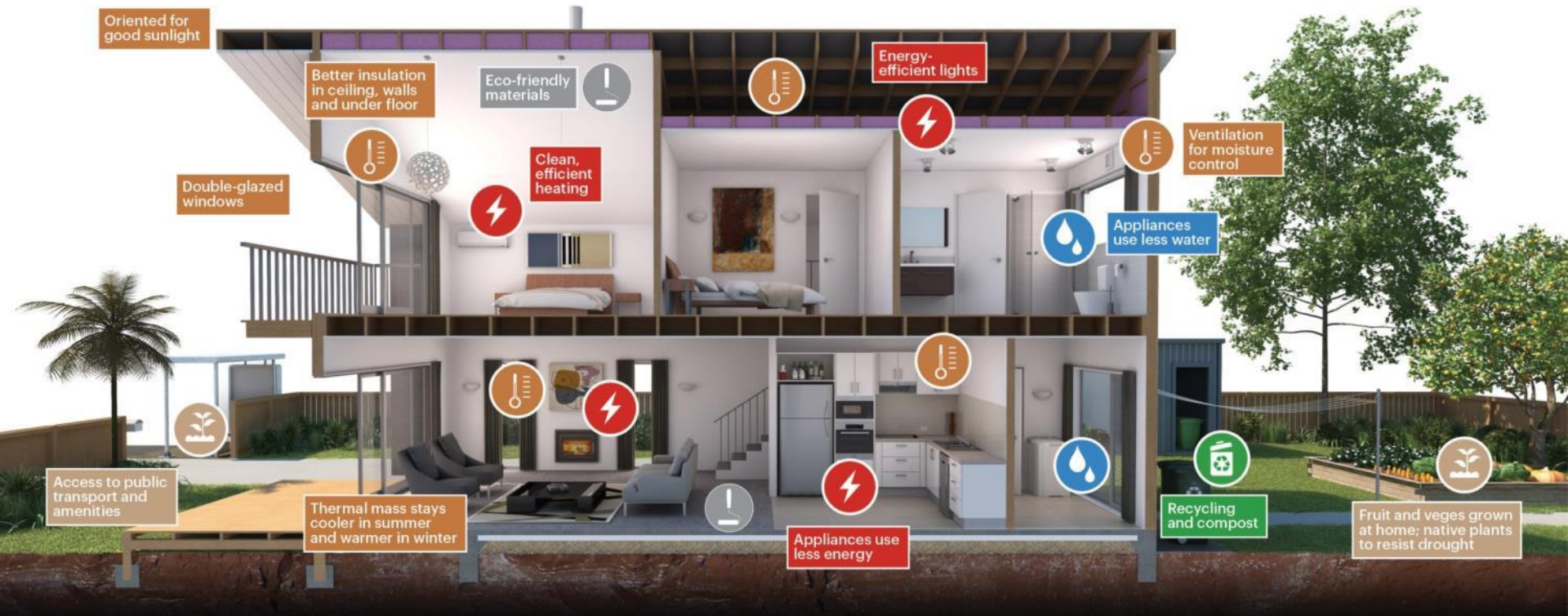


Greenwich Gardens: Metlife Care



6 Homestar: not that scary!

- ✓ higher than building code levels of insulation in floors, walls, ceilings



6 Homestar: not that scary!

- ✓ double glazing with low-e coating or thermally broken
- ✓ efficient space heating and hot water heating
- ✓ good orientation
- ✓ measures to limit and control moisture
- ✓ water efficient taps and fittings
- ✓ LED lighting and good natural daylighting
- ✓ materials with eco-label certifications, low VOC interior fittings
- ✓ *may also have:* fruit trees, proximity to amenities or transport, rainwater harvest, onsite stormwater management

R-values: NZBC vs indicative Homestar

Climate Zone	Zone 1 +2		Zone 3	
	NZBC	Homestar	NZBC	Homestar
Roof	2.9	3.2	3.3	4.0
Walls	1.9	2.2	2.0	2.6
Floor	1.3	1.5	1.3	1.5
Windows	0.26	0.26-0.33	0.31	0.43

A 2012 eCubed cost-benefit case study found that a 6 Homestar rated house saved:



\$595 in energy costs per annum

\$132 in water and waste water costs



resulting in...

7 year payback

at net present value

Health benefits are equally important – and have greater financial impact:

Additionality:	
Discount rate:	4%
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Costs	
Admin costs	23
Deadweight costs of tax	51
Installations - insulation	173
Installations - clean heat	85
Sub-total	332
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Benefits	
Energy	17
Health	1,266
Sub-total	1,283
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Net Benefits	951
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Final Report October 2011

Revised June 2012

Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme

Arthur Grimes⁽¹⁾, Tim Denne⁽²⁾, Philippa Howden-Chapman⁽³⁾,
Richard Arnold⁽⁴⁾, Lucy Telfar-Barnard⁽³⁾, Nicholas Preval⁽³⁾ and
Chris Young⁽¹⁾

⁽¹⁾ Motu, Wellington; ⁽²⁾ Covec; ⁽³⁾ He Kainga Oranga/Housing and Health Research Programme, University of Otago, Wellington; ⁽⁴⁾ Department of Mathematics, Victoria University of Wellington

Prepared for

Ministry of Economic Development

New Homestar 1) - Volume certification

- Standard designs pre-rated
- Market homes as Homestar “ready”
- Rating achieved at built stage after site check by assessor



 homestar Pre-rated 6 star

New Homestar 2) Short form assessment

- Checklist for major developers
- For compliance with Homestar 6 Star
- Schedule of minimum R-values
- Reduced documentation

Homestar (V2) 6 star schedule method (Single House or Townhouse only)

Performance Requirement / Feature	Tick if compliant	Evidence provided?
The Dwelling has a RAF of at least 1	<input type="checkbox"/>	
The Dwelling is confirmed by Assessor to achieve 10 pts or more in EHC 6	<input type="checkbox"/>	
All walls, roofs and floors have an R value > R 1.5	<input type="checkbox"/>	
Moisture minimisation and ventilation		
At least 1 window per room is fitted with a restrictor allowing for natural ventilation (with opening of at least 10mm along one edge) without risk of intruder entry.	<input type="checkbox"/>	Site check
Extracts from kitchen and bathrooms are ducted directly to the exterior and outlet grilles include suitable covers and rain deflector blades	<input type="checkbox"/>	Site check
Bathroom extracts are automated or hard wired to light switch (preferably fan will be on delayed start timer)	<input type="checkbox"/>	Site check
The ground floor is either concrete slab or suspended timber with polythene sheet on ground	<input type="checkbox"/>	Site check
Lighting		
Interior Lighting: All lighting are CFL or LED (CA or ICF rated) with dedicated bases so light fittings cannot be replaced with lower performing light fittings.	<input type="checkbox"/>	Site check
Exterior Lighting: All lights are CFL or LED and include daylight cut-off and motion sensors, or integrated PIR cells. For decks or sitting areas, motion and daylight sensors can be excluded if the lighting design achieves < 1.5W/m ² (and preferably has a diode switch indoors so people can see the outdoor lights are on even with the curtains drawn).	<input type="checkbox"/>	Site check
Security lighting to have daylight cutoff and motion sensors.	<input type="checkbox"/>	Site check
Space and hot water heating		
The dwelling has either no heating, or has heat pump, or has flued wood fire place (and there is no gas fire or unflued fire/chimney)	<input type="checkbox"/>	Site check
The dwelling has either heat pump hot water, or solar hot water - with no bigger cylinder than 60L/bedroom	<input type="checkbox"/>	Site check
Whiteware and appliances		
Fridge: whether provided by building company or Home-Owner, the fridge must have a minimum 2.5 energy Rating if bottom freezer or side-by-side - OR 3.5 energy star rating if top freezer.	<input type="checkbox"/>	Site check
Dishwasher: if provided select an appliance with a minimum 4 star energy Rating and >4 star WELS rating	<input type="checkbox"/>	Site check
Washing Machine: if provided select an appliance with a minimum 5 star WELS rating.	<input type="checkbox"/>	Site check
Clothes Dryer: Either provide no Clothes Dryer or ensure this is also ducted directly to exterior/ condensing model	<input type="checkbox"/>	Site check
Taps, toilets, showers and rainwater		
All kitchen and bathroom taps are set to be < 6L/min (laundry taps and bath tub taps excluded)	<input type="checkbox"/>	Site check
Shower flow rate is < 9L/min (WELS 3 Star)	<input type="checkbox"/>	Site check
WCs are dual flush with no more than 4.5L / 3L	<input type="checkbox"/>	Site check
In-built overflow prevention is included on all tubs, sinks and basins OR floor ground waste is present in wet areas.	<input type="checkbox"/>	Site check
There is a rainwater tank of at least 500L or more, connected to more than 30m ² of roof catchment area, and has at least 1 tap connection to the tank for hose or garden irrigation.	<input type="checkbox"/>	Site check
Waste		
Interior recycling bins are provided in a dedicated space inside kitchen with at least 2 x 10L capacity, as well as sufficient outdoor space dedicated for recycling bins (or centralized refuse facility that has easy access for the homeowner and easy access for the waste collection service.)	<input type="checkbox"/>	Site check

3) Improved language



- Simplify & improve language
- Implementing items bought up in feedback
- Advisory panel
- Marketing campaigns – focused on quality & Homestar

Homestar v4 Training



August and September 2017

Auckland, Wellington, Christchurch



register your interest with:

education@nzgbc.org.nz



more information online under "Upcoming Courses" on NZGBC website:

www.nzgbc.org.nz

Elephant in the room – existing homes



- 900,000 homes in NZ have less ceiling insulation than 1978 Building Code
- 700,000 have no, or little, wall insulation
- 740,000 have no underfloor insulation

(Beacon Pathways 2013)

HomeFit - the standard for existing homes

Warm, dry and efficient

- Efficient heating & no open fires /unflued heaters
- Efficient hot water heating
- Range hoods & all bathrooms mechanical extract
- One of the following
 - windows lockable when open
 - trickle vents
 - whole house mechanical ventilation



- Any attic/ceiling spaces dry & lights sealed
- Dry & undamaged insulation
 - Underfloors R1.5,
 - Ceiling R3.2
 - Ceiling spaces R3.6
- All interior lights LED or CFL with efficacy 35Lm/W
- Dryers need to be condensing & or vented outside

Water

- Shower - max 12 L/min (or Min WELS 2)
- Toilet – dual flush (or WELS 3)

HomeFit - the standard for existing homes

Safe Home

- Long life smoke alarms
- Windows & doors - securely locked & anti theft latches
- Motion activated security lights at main entrance
- Clear and connected gutters
- Hot water temperature lower than 55°C

HomeFit – For existing homes



HomeFit Plus

- Walls insulated to R1.9 & double glazing
- Or R2.4 & thermally broken double glazing
- Balanced heat recovery ventilation or solar air heating
- Interior lighting is LED or 65 lumens
- Rain water collection
- Alarmed house

HomeFit – Improving quality of life



"When we first came here there was mould and damp in the bathroom and our girls were the sickest they have ever been.

After the Homestar retrofit it's the complete opposite. Our children don't get sick, it is warm and well lit with daylight.

Zane Raphael,
homeowner

Actions for you

- You are important to us - Feedback on Home Fit
 - in person
 - email me or the team andrew.eagles@nzgbc.org.nz
 - webinar - 30th May
- Use the standard to
 - sign off on The Residential Tenancies Act
 - provide a kite mark of improvement
- Become an assessor – training later this year

New Zealanders deserve quality homes and buildings



Thank you for your help
championing & leading the way.

