Sustainable Healthy Housing
Where should NZ aim?
Setting the Scene

1.8 Million

800,000
by 2050
5th House Condition Survey

This survey has been conducted every 5 years since 1994

560 NZ Houses assessed from September 2015 to June 2016

- 35% rented
- 65% owned

51% of children’s bedrooms were not heated in winter

46% of households did not heat bedrooms in winter

Heating Habits

Mould was visible in 49% of all houses

- 44% owned
- 56% rented

Mould was most commonly found in bathrooms.

Managing mould

Mould was more commonly observed in houses lacking effective heating, ventilation and insulation

Insulation

- 53% could benefit from retrofitted insulation in the roof space and/or subfloor
- 47% had less than 120mm or insufficient coverage of insulation in the roof space
- 19% had insufficient coverage of insulation in the subfloor

Ventilation

Only around half had an extractor fan in the bathroom venting to outside

Only around half had an extractor fan in the kitchen extracting to outside

House Maintenance

Owned vs rented property

- Well maintained: 48%
- Reasonably maintained: 38%
- Poorly maintained: 14%

Heat pumps

- 40% of owner-occupied
- 25% of rentals

Wood burners

- 39% of owner-occupied
- 23% of rentals

Electric heaters

- 25% of owner-occupied
- 33% of rentals

Portable unfired gas heaters

- 4% of owner-occupied
- 15% of rentals

Heating Appliances
An inadequate building code means:

**INSULATION AND AIR-TIGHTNESS REQUIREMENTS IN CHRISTCHURCH AND LONDON**

<table>
<thead>
<tr>
<th>Component</th>
<th>Christchurch</th>
<th>London</th>
<th>Uncontrolled air-leakage (m³/m²/hr at 50Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall R-Value</td>
<td>5</td>
<td>6</td>
<td>Not Regulated</td>
</tr>
<tr>
<td>Roof R-Value</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Floor R-Value</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Window R-Value</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
What NZGBC does

- Advocate
- Train
- Benchmark
What we do - benchmark

<table>
<thead>
<tr>
<th></th>
<th>BUILDINGS</th>
<th>HOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW /</td>
<td><strong>greenstar</strong></td>
<td><strong>homestar</strong></td>
</tr>
<tr>
<td>FIT OUTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXISTING</td>
<td><strong>greenstar</strong></td>
<td><img src="fit.png" alt="Home Star" /> Fit for living</td>
</tr>
</tbody>
</table>
What is Homestar

1* 2* 3* 4* 5* 6* 7* 8* 9* 10*

- Minimal energy, health, water and comfort features.
- Typical house built to New Zealand Building Code standards.
- World best in all categories.
Uptake of Homestar

- 1,800 homes registered in past 12 months
- Potential for 30,000 homes over next 7 years
- Councils are adding Homestar to the LIM
- Repeat clients are progressing up the stars
- ANZ mortgage
What is HomeFit

**HomeFit** is a no-nonsense, straightforward way to check if a home is **warm, safe and dry**

It works in two easy ways:
A trustmark

Fit for living
HomeFit, early success

• Strong uptake from property managers - HomeFit shows HHS is met

• Councils are:
  • targeted rates schemes
  • LIM

• One million page views, 27,000 users through free tool

• Wellington Region Healthy Housing Response Group 170,000 homes
WHY GREEN BUILDING MATTERS

ENVIRONMENT MATTERS

- Transport: 44%
- Nutrition: 19%
- Other: 17%
- Built environment: 20%

59,894 kt CO₂e
13 t CO₂e/ca.

NZ Green House Gas inventory 2017, Ministry for Environment
Zero Carbon Roadmap

- **All new buildings zero carbon by 2030**
- **All buildings zero carbon by 2050**
Definitions

Net Zero Carbon

“a building that is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources”
Net Zero Carbon

Why is energy efficiency important?
Net Zero Carbon

Fossil Fuels

tonnes CO2e per year (2016)
What we’re asking for

Government

• Must set a 10-year trajectory to ensure new buildings are nearly zero energy under the Building Code by 2030.
What we’re asking for

Government

• Home Energy Rating:
  • Insulation / Windows
  • Thermal bridges
  • Air-tightness
  • Efficiency of space heating
  • Efficiency of water heating
  • Lighting efficiency
  • Risk of overheating

• Zero Carbon Hub
# Low Carbon Homes

## Need to set a trajectory - 2030

<table>
<thead>
<tr>
<th>Building Code equivalent to:</th>
<th>2022</th>
<th>2025</th>
<th>2027</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homestar</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>Zero Carbon</td>
</tr>
<tr>
<td>Government procured homes</td>
<td>7 Homestar</td>
<td>8 Homestar</td>
<td>Zero Carbon</td>
<td></td>
</tr>
</tbody>
</table>
What we’re asking for

Government

• Must require energy-efficiency labelling on new and existing buildings
What we’re asking for
Government
What we’re asking for

Government

• Must lead by example though constructing and operating low/carbon, sustainable buildings
Three take-aways

1. Energy labelling of existing homes

2. Progressively tighten building code to zero carbon in 2030

3. For both the above Home Energy Rating Scheme (EPC)