



# Building-in Sustainability

liveable solutions for a low-carbon future

adrian buffery  
development director



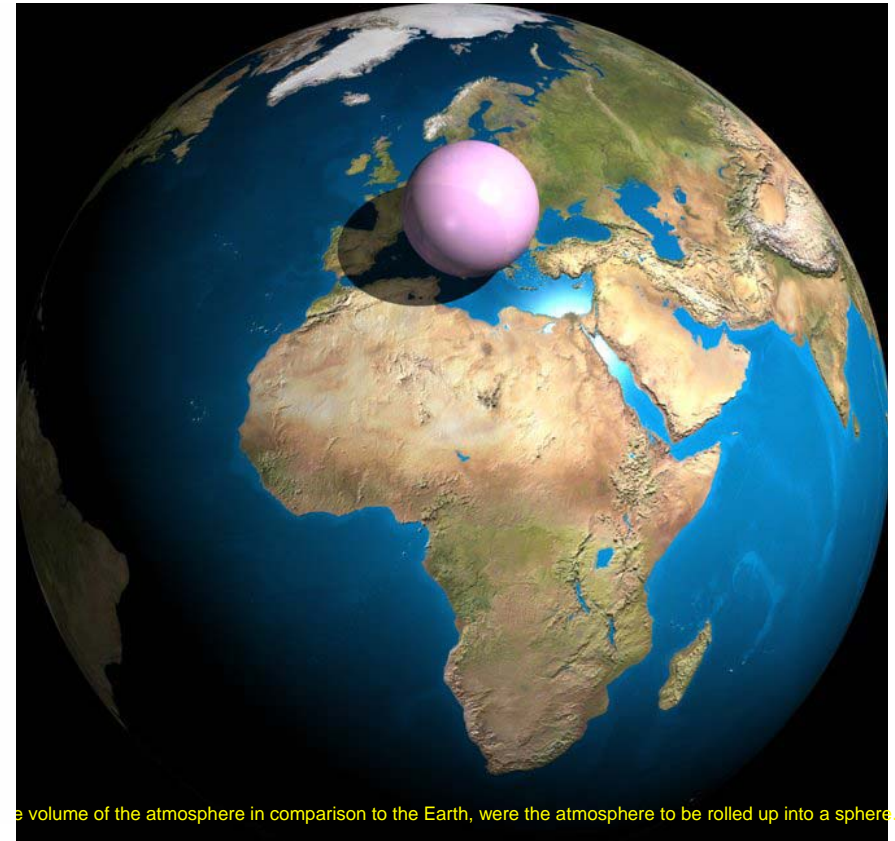
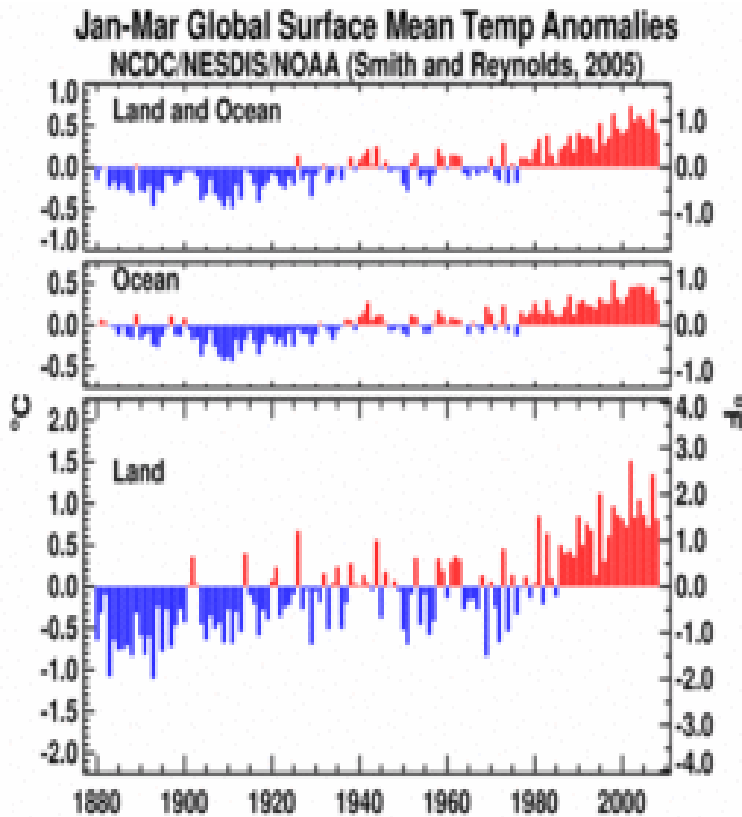
greenoak  
housing association

## session themes

1. Sustainability from a provider perspective
2. Greenoak's experience in greenhomes
3. Feedback on liveability in use
4. General indicators of success

# why ? – it's our business

- Integrating sustainability - it's not an optional extra



the volume of the atmosphere in comparison to the Earth, were the atmosphere to be rolled up into a sphere.

# a sustainable landlord ?

Are we building housing  
which meets residents needs  
& expectations?

Space standards

Light and warm

Quality of design & construction

Affordable & attractive – now / future



## how ? – setting up

- Organisational Commitment
- Quality and Value-led – beyond compliance ticking
- Integrated Design – avoid add-ons
- Measuring Outcomes – reducing the design/actual  
**gap**



# getting there – take action

- Use existing knowledge
- Tenant engagement
- Skilled design team
- Procurement approach
- Testing standards
- Learning ‘what works’



# delivering green homes

## Priorities:

- 1) Liveability
- 2) Energy saving
- 3) Waste avoidance
- 4) Value for the Future



# greenhomes

## Reduce energy use, pollution & fuel bills.

- High levels of insulation
- Triple glazing
- Airtight construction
- Avoid cold bridges through insulation
- Draught lobby
- No cold roofspace
- Plenty of daylight
- Low energy lighting

## Adaptable

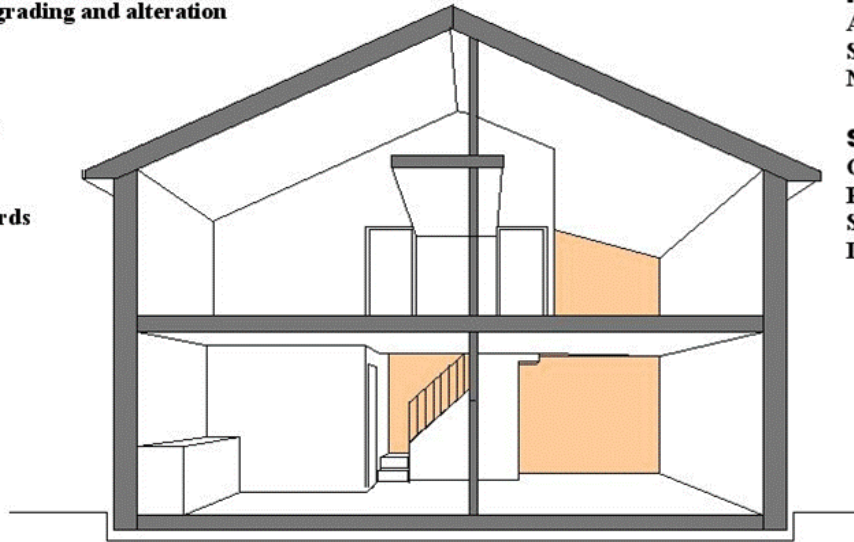
- No load bearing interior partitions
- Services accessible for upgrading and alteration

## Accessible

- Wheel chair accessible
- Lifetime Homes standard

## Secure

- Secured by Design standards



## Reduce water bills

- Low water use toilet
- Shower with efficient spray head
- Spray taps
- Water butt in garden

## Reduce waste

- Recycling bins provided
- Prefabricated structure
- Contractor to recycle waste on site

## Reduce maintenance

- Aluminium exterior to timber windows
- Self-coloured render
- No painting as natural finish to timber

## Sustainable specification

- Ozone friendly
- PVC free
- Sustainable timber
- Low environmental impact materials

Eco friendly houses

Greenoak Housing Association

Jon Broome Architects  
Sustainable Construction Consultants  
020 8291 9167



greenoak  
housing association

# rocket science?

- Easy to live in – for all
  - Passive approach – risk
  - Light and healthy
  - Spacious and flexible
  - Toxin-free, carbon light
  - Waste reduction
  - No water run off
- 
- Lifetime homes standard
  - Future-proofing design
  - Minimise lifetime costs



## getting there – take action

Reduce demand before  
greening the supply

Insulation & airtightness

Devil in the detail

Avoid cold bridging

Controlled ventilation

Ensure high build quality



# overcoming barriers

## Technology

- Design
- Supply
- Quality

## Psychology

- Buy-in
- Business planning
- User off-setting



## be interactive

Test and measure

Monitor actual power  
and water use

Talk to residents, staff  
and other stakeholders

Learn the lessons

Improve the model



**wind powered solar assisted renewable low carbon drying system**

-courtesy Prof. David Strong

## our homes



A sustainable landlord  
Comfortable, attractive,  
affordable homes  
Reduce consumption  
Allow easy upgrading  
Ensure long term demand



## feedback includes..



modern design, spacious rooms

low heating and water bills

warm and draft free

good natural light and sunlight

high quality fittings

useful mezzanine spaces

homely, feels safe



## feedback quotes..



greenliving

**“light and airy”**

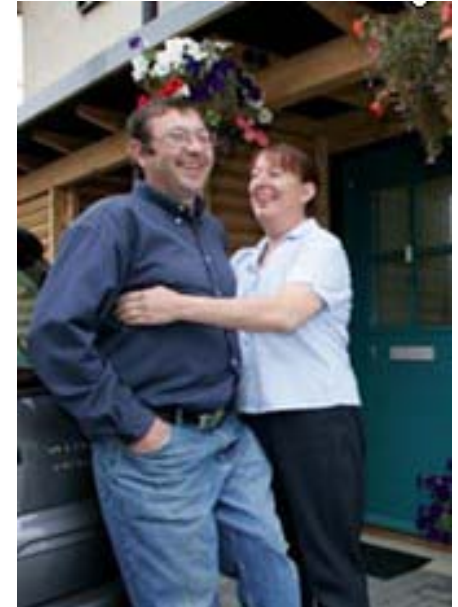
**“it’s so spacious”**

**“before I moved in I thought I should buy a draught excluder, I’m glad didn’t!”**

**“warm... I could grow tomatoes in here!”**

**“...the energy bills are good and I can’t remember the last time we put the heating on”**

**“they have the Tardis effect – they don’t look that big from the outside but everyone who comes in is like ‘wow what a huge lounge’.”**



# liveability

health & wellbeing

*‘..air is much cleaner and fresher..’*

*‘....more space for the kids to play...they can have friends round ....’*

*‘Before I moved in here would get a cold every month, since I’ve moved in here I’ve had maybe 2 or 3 colds in 2 years.’*

*‘..seeing the sun in winter...it lifts you, you know...’*

*‘it’s good that the house can be adapted in the future...for my son...’*

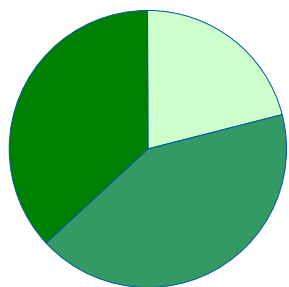


# liveability

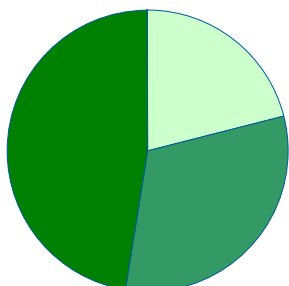


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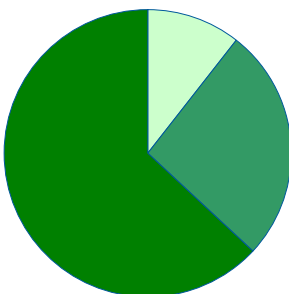
## resident satisfaction levels



house layout

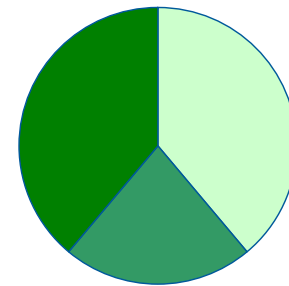


room size

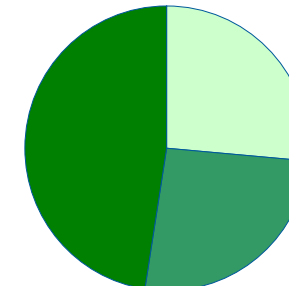


natural light

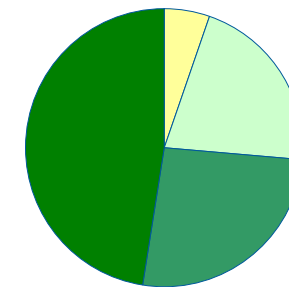
happier



pride



safe & secure



very low

low

satisfactory

high

very high

# passive savings

reducing gas consumption

high levels of insulation

250 – 300mm of recycled cellulose insulation in walls, floors and roofs giving a u-value of around 0.16

triple glazing

Giving overall u-value of 1.2

airtight construction

twice tested for airtightness giving 1.5 – 2.5 M<sup>3</sup>/m<sup>2</sup>/hr

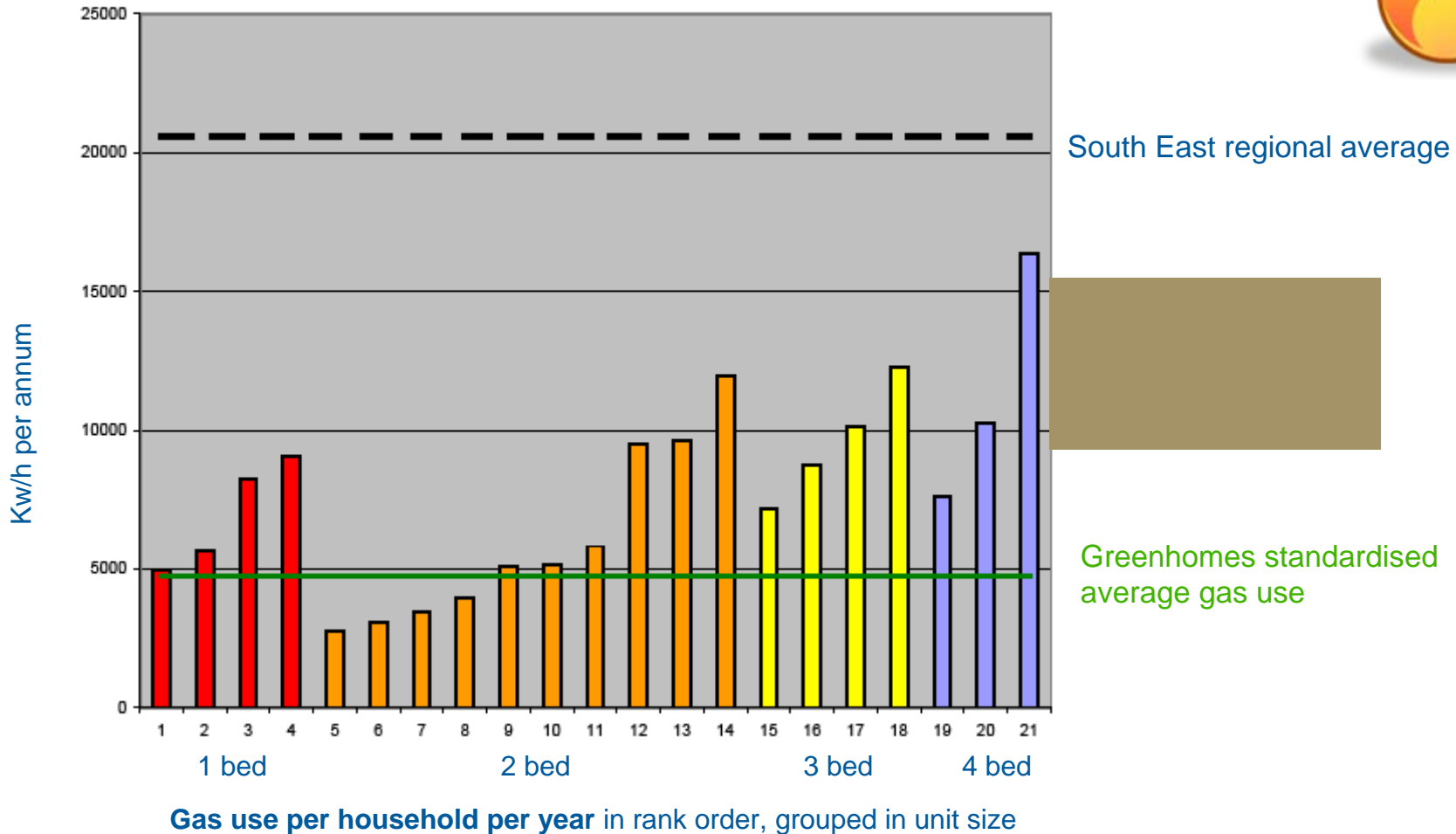
heat recovery

85 % efficient air to air whole house ventilation



# passive savings

## Greenhomes gas use per household per year



# passive savings

reducing water consumption

reduced flow fittings

Water efficient WC

Planning plumbing layout to avoid long runs

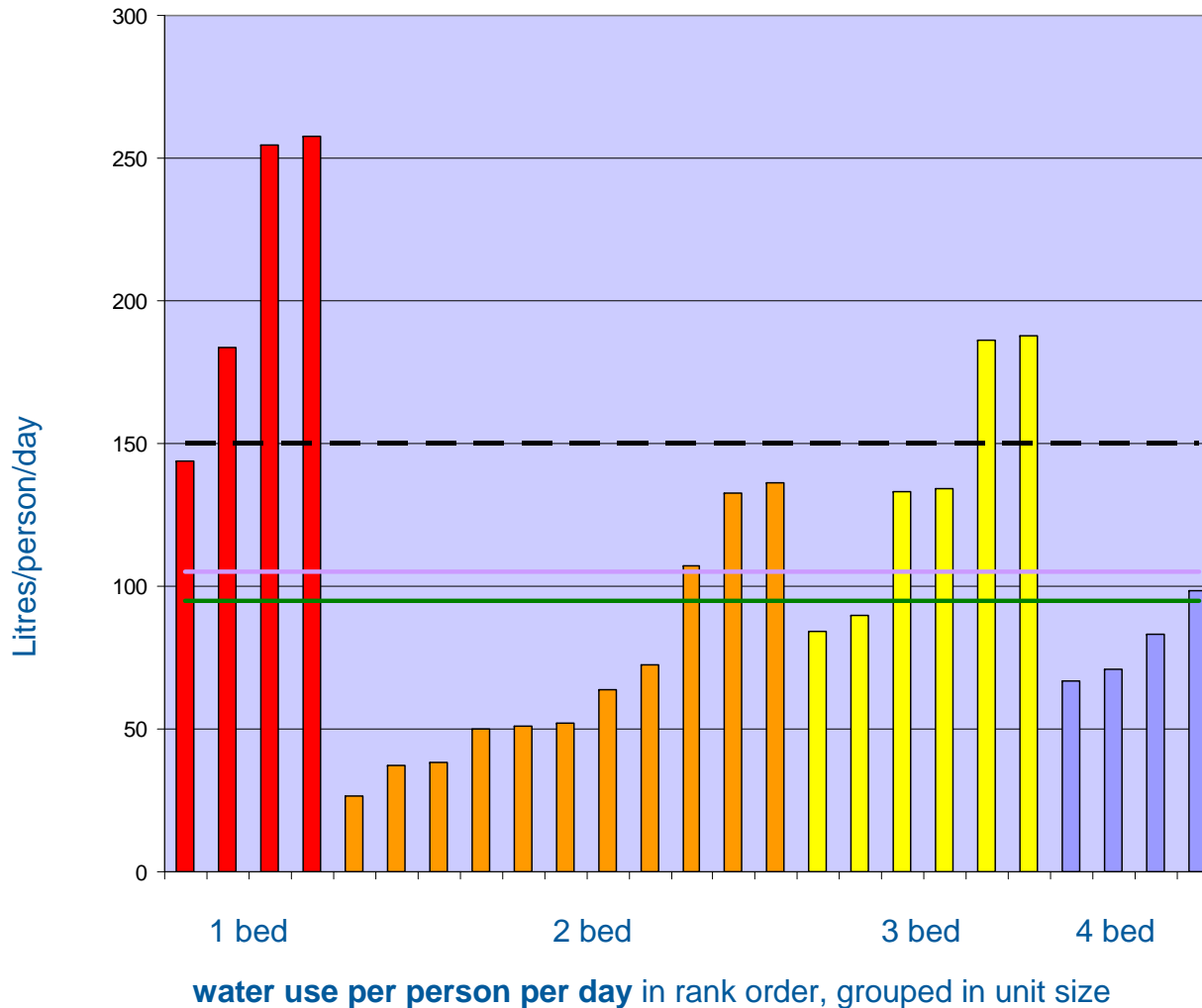
Omitting outside taps

Installing water butts



# passive savings

## Greenhomes water use per household per year



South East regional average

CSH level 4

Greenhomes standardised average water use

# passive savings

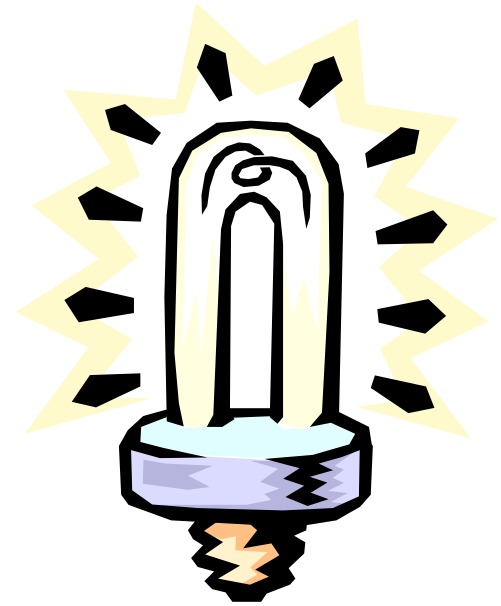
reducing electricity consumption

Dedicated low energy lighting throughout

Large windows for maximum daylight

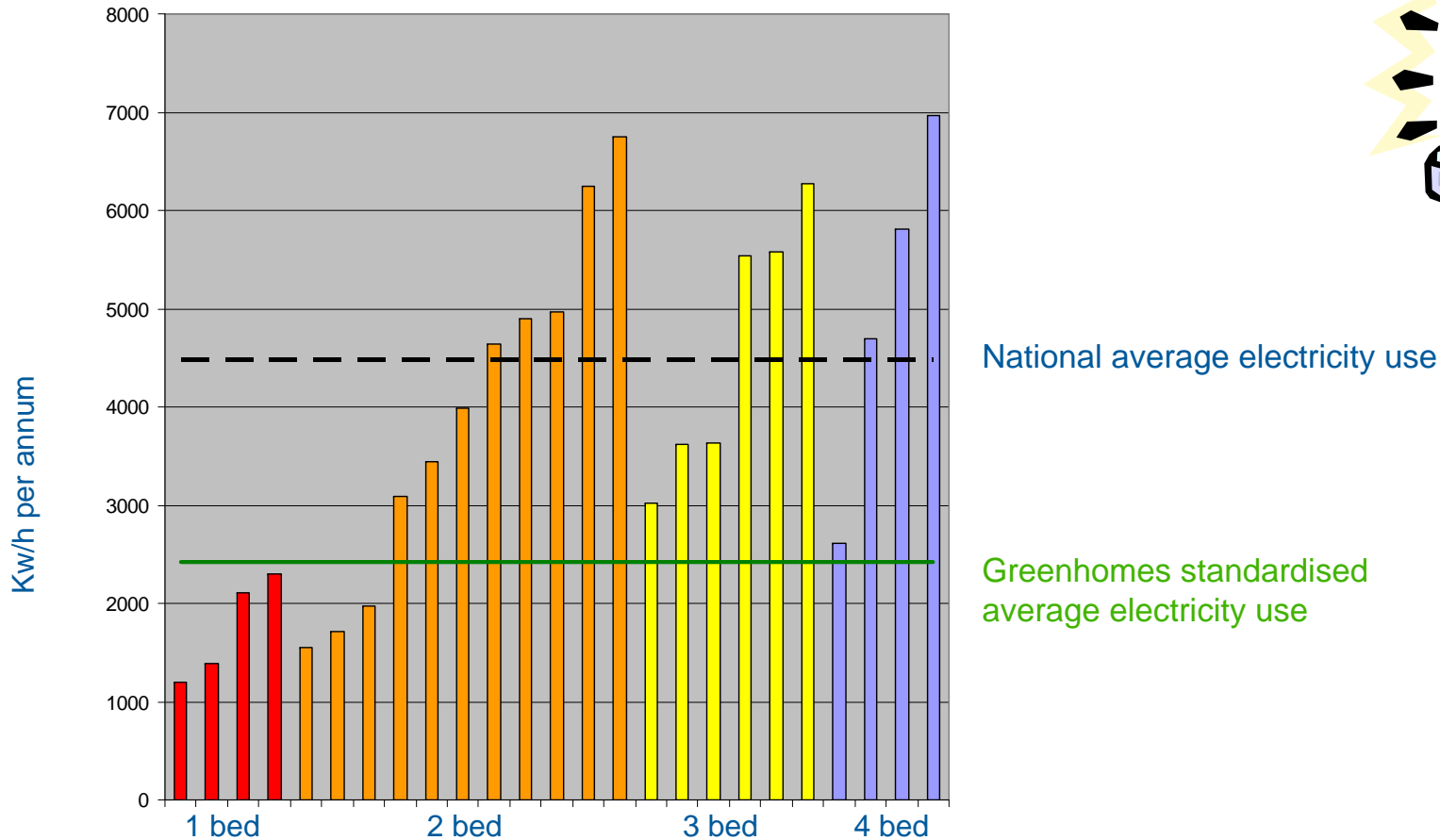
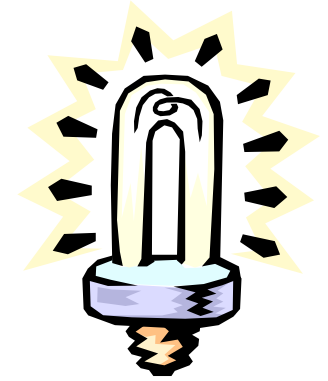
A+ appliances where supplied

energy efficiency advice



# passive savings

## Greenhomes electricity use per household per year

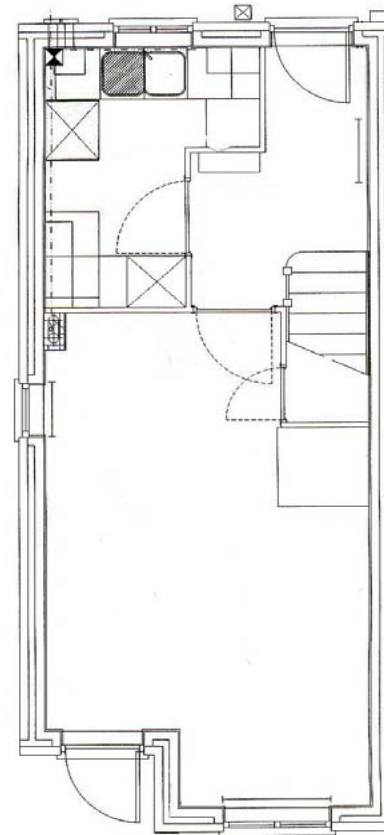


electricity use per household per year in rank order, grouped in unit size

liveability



greenhomes



S.106 development



## gold messages



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1. Board commitment
2. Organisational champions
3. Overall strategy
4. Partnership working
5. Using existing knowledge
6. Invest in research
7. Do something

...its about physics, economics, but mostly management

# What has worked for us?

## Passive approach:

Built-in not bolt-on

## Focus:

Not trying to do everything at once

## Waste reduction:

Reduce before greening the supply

## Reality monitoring:

Understanding actual usage

## Learning the lessons:

Sharing what does and doesn't work, learning from others



**Keep It Simple and Sustainable!**



**greenoak**  
housing association

**liveable solutions for a low-carbon future**

**[www.greenoakha.org](http://www.greenoakha.org)**  
**01483 747900**