



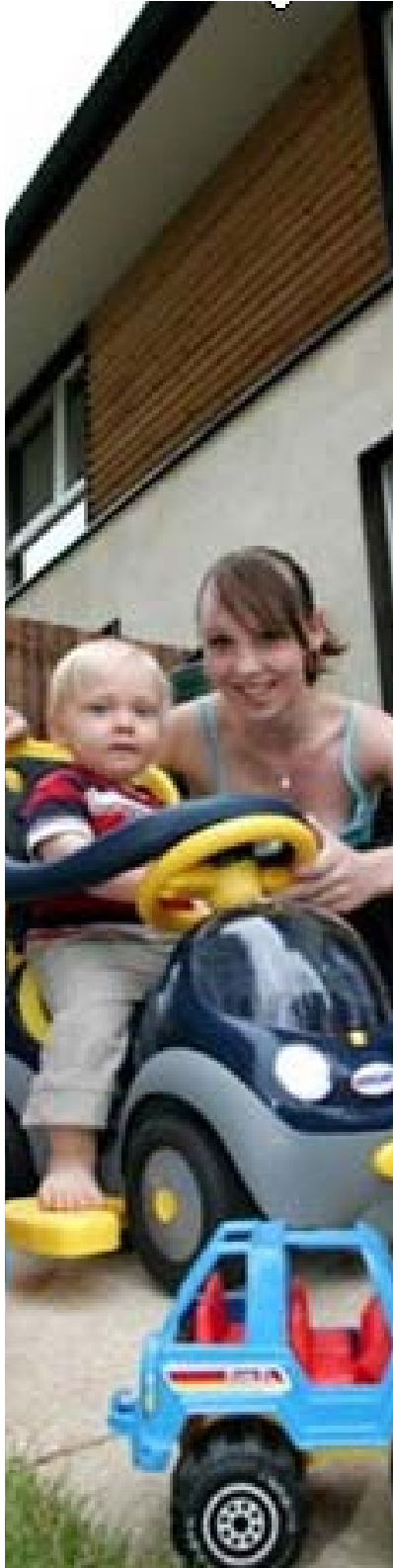
future proof housing? liveable solutions for a low carbon future

Greenoak is a small, growing Housing Association with around 400 units in management throughout Surrey and Sussex. In 1999, Greenoak developed and adopted an environmental sustainability policy and plan. This put the desire to become a truly sustainable landlord at the core of the organisation's business. Since this time, Greenoak has become a leader in environmental sustainability within the housing sector, and one of the three winners of the Housing Corporation's Gold Award for environmental sustainability together with Drum Housing Association and Places for People Group.

Greenoak, with Jon Broome Architects, has developed a new house model called *greenhomes*. These houses combine high building performance and low environmental impact with thoughtful design and generous space standards. In developing this model, the aim was to not only improve the environmental performance of the housing, but also to design out obsolescence and to learn from, and avoid common design and construction 'mistakes'. At present there are two *greenhomes* schemes completed and occupied with a third about to start on site. Keen to ensure that the *greenhomes* model is cost effective and replicable, Greenoak applied for an Innovation and Good Practice (IGP) Grant from the Housing Corporation to assess the success of the *greenhomes* and to identify barriers to mainstreaming. This work also complements Greenoak's own aim to continuously improve the *greenhomes* model within its current development programme.

This document introduces the key findings from the IGP research. The full project report will explain what Greenoak was attempting to achieve in developing this model, and outline the findings from the evaluation and resident consultation undertaken. It will also explore the barriers to mainstreaming this design and procurement approach.

Key findings



Liveability

- What do residents like most about *greenhomes*?
 - Spacious
 - Light & airy
 - The way the houses look
 - Low running costs
- Design **is** important to residents
- Spacious :
 - 30% bigger than 'traditionally' built Greenoak stock
 - Residents comments: children have a place to play & study, it's so spacious
- Light & airy
 - Whole house ventilation
 - Raised ceilings
 - Residents comments: improves sense of well being, air much fresher
- Design
 - Residents say they are proud to live there
 - High resident satisfaction with house design and layout

Passive gains

- Passive building; highly insulated & airtight
- Gas, electricity and water use show much reduced average consumption compared to regional figures
- Passive approach is achieving real savings
- High resident satisfaction;
 - Draught free
 - Winter temperature
 - Natural light
- Built in, not bolt on - there for the lifetime of the building

But it could be even better...

- Large variations in resource use across the schemes
- Need to work with residents to reduce consumption and maximise resource savings

Passive cooling

- Some residents expressed dissatisfaction with internal summertime temperatures
- Why ?

Key findings

- Measures to avoid overheating include:
 - Insulation & triple glazing keep heat out as well as in
 - Light coloured walls reflect radiant heat
 - Solar shading
 - Roof overhang
 - Pergolas
- Satisfaction levels lower on one scheme
- No apparent link to orientation
- Incidental heat gains could be a factor – large number of electrical appliances in the houses
- Working with residents on passive cooling techniques
- Providing velux openers – giving control to resident
- Louvers on next *greenhomes* development, to provide secure night time cooling

Active Procurement

- Take control
- Take on development risk to reduce overall risk
- Be a strong, informed client
- Seek advice
- Set high standards
- Test and retest

Introducing technology

- Passive works, but work with residents to maximise savings
- Get the basics right first
- No renewable technology installed on first 2 schemes, although *greenhomes* are designed to allow upgrades
- Heat recovery added to 2nd scheme - lessons
 - Avoiding noise nuisance
 - Access – where to site plant
 - Filters - maintenance
 - Resident awareness – training to ensure residents can maximize savings
- Adding solar hot water system to third scheme
 - Greenoak intending to work with residents to explain & train how to get the most from the system.

K.I.S.S

Simplicity is key





For more information,
or to request a copy of the final research report;

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www.greenoakha.org