

OUR NEW HOME



centre for
sustainable
energy

Executive summary

The experience of families
in their first year of living in
new-build, high energy performance,
affordable rental homes

A report for Alliance Homes
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About the research

This research was commissioned by Alliance Homes, a community-based social housing provider operating in the West of England (www.alliancehomes.org.uk). It sought to understand the experience of low-income families in their first year after moving into eight new build affordable rent EPC B homes in South Bristol in 2020. The newly built houses include gas central heating (with underfloor heating on the ground floor and radiators on upper floors) and solar photovoltaic panels with free generated electricity available to tenants until 6pm.

This report presents findings from the research on:

- Effects on tenants' energy usage, fuel bills and household budget of living in a highly efficient (EPC Band B) home.
- Tenants' experiences of adjusting to living in a new home, including their ability to control the heating system to achieve a comfortable, warm living environment.
- Benefits or drawbacks in living in a highly energy efficient home, including on well-being.
- Tenants' views on the value of the energy advice offered.

Approach

Tenants received tailored energy advice on how to make the best use of the technologies for their own comfort and household budget. Contact points with tenants during the project included an initial home visit in February 2020, quarterly phone calls and a final phone interview in January 2021.

The effect of living in a highly efficient home on energy expenditure and overall household budget was measured by comparing their actual energy consumption, against an anticipated consumption estimate calculated using national energy consumption statistics. The anticipated figure was adjusted for EPC Band, tenure and household.

Findings

Impact on energy usage, fuel bills and household budget

The research arrived at inconclusive findings regarding the impact of living in a highly efficient home on energy usage, fuel bills and overall household budget. Over the year, two families' electricity usage was lower whilst four families' usage was higher than anticipated for their property type, tenure and household size. Similarly, two families' gas usage was lower and 5 families' gas usage was higher than anticipated for their property type, tenure and household size. On average, electricity usage across all participating families was slightly above the anticipated usage for an EPC Band B property (+459 kWh) whilst average gas usage was much higher than would have been expected. (+38,951 kWh).

After a year living in their new homes, three tenants reported that their fuel bills were manageable, two said that they were a concern and a further two said that they had concerns about either their gas or electric bill. Two tenants reported cutting back on food, clothing or other expenditure due to concerns about their fuel bills.

It was not possible to compare fuel bills against actual bills from their previous homes. Two tenants reported that their spending on energy had reduced, or stayed about the same despite moving into a larger home.

Using the new heating system

Most tenants struggled to achieve satisfactory control of the heating system in their new home. This was despite saying on moving in that they felt confident in using the heating controls. Over the course of the first year in their new homes, many of them experienced problems with the heating system and so felt less confident about being able to control their heating. Most tenants struggled to maintain a healthy temperature in all areas of their home: in particular the ground floor was too hot and the top floor was cooler. Seven out of eight tenants overheated their homes, though all homes had healthy humidity levels.

Tenants found it difficult to achieve a healthy ground floor temperature for the underfloor heating. They found it hard to get used to its slow warm up time. Tenants also reported confusion about the upstairs programmable room thermostat, especially at the start of the heating season.

The higher than expected gas usage by some of the tenants is likely to be associated with the difficulties they had controlling the heating system and the overheating experienced. However, other factors may be relevant, not least, the effects of lockdown for people spending more time than usual at home and hence on their electricity and gas usage.

Benefits and drawbacks of living in a new energy efficient home

The families appreciated moving into a comfortable, larger home with outdoor space. They particularly valued the children having more indoor and outdoor space to play and having more than one bathroom. Tenants reported benefits for their own and their children's emotional wellbeing. One child with a learning disability particularly benefitted from having more living space, a quiet home and a garden.

Tenants appreciated the free daytime solar electricity. They reported using washing machines, dryers, dishwasher and cookers during the day to get the most benefit.

The respiratory health of one child benefitted from the move into a warmer, healthier home. However, tenants also found that their homes tended to get overly warm, reaching temperatures above those recommended for a healthy home.

Other problems encountered in the new homes concerned poor garden drainage and internal water leaks. Tenants also said they found it difficult to know whether the solar panels were working and how much free electricity was available to them.

Views on the energy advice given

The most widely appreciated energy advice was about how to time their use of household appliances to maximise use of the free daytime solar electricity. Tenants also valued the advice on how to set and use the heating controls. Families were also given advice about cheaper energy tariffs and available energy and water discounts. Only one tenant mentioned this as a valued benefit of the advice.

Tenants said that additional support upon moving in on how to use the heating controls would be valuable for new tenants. Tenants also said they would find it helpful to be able to see how much free solar electricity was available to them. One tenant recommended improving record making and communications by the Repairs team, especially for tenants without heating and hot water.

Recommendations for social housing providers

The following set of recommendations is aimed at social housing providers of affordable rent new homes for low-income families. Further supporting detail is provided at the end of the report.

At the point of commissioning and adopting new builds, including snagging

1. Give careful attention to the choice of heating system and heating controls, specifically to avoid complex multi-zonal systems with a mixture of slow warm and fast warm heat emitters. Fit heating controls which are simple to use and are supported by good quality user support.
2. Consider the type of heating as an integral part of the building design as this has implications for the transition to low carbon heating. This research identified problems with the effectiveness of underfloor heating in homes with an open plan ground floor and large patio doors. It may be preferable to consider using large radiators which are familiar to most tenants, more easily controllable and mean that properties fitted with gas central heating will be 'heat pump ready'.
3. Require smart meters to be installed in new homes so that meter readings are automatically provided to the supplier for more accurate billing.
4. Check that the garden design includes adequate drainage and provision for external clothes drying. Options could include a retractable wall-mounted line dryer or a rotary airer positioned to avoid harm to liners. This can minimise problems of damp, condensation and mould as well as enabling economical clothes drying on fine days.
5. Require installers to come back to resolve any snagging issues with the heating, plumbing and other systems.
6. Installing solar photovoltaic panels is a welcome way for tenants to save money on electricity. Where panels are installed, provide an electricity generation monitor so that tenants can see when they can use appliances when free electricity is available and recognise the financial impact of doing so.

At move-in and soon after

7. Assist tenants to sign up to a suitable competitive supplier and tariff at move-in.
8. Offer a demonstration of the heating system to tenants at move-in and a follow-up refresher soon after.
9. Explain the energy efficiency features of the home to tenants, for example the requirement for less heating and better ventilation of the home and how to avoid overheating.
10. Provide information in the tenant welcome pack and support to tenants to help them understand the importance of monitoring their energy usage and fuel bills, especially when moving into a larger home. Remind them that whilst a new energy efficient home should mean lower energy costs, they need to be aware that if they choose to 'take back comfort' by having the heating on longer or at higher temperatures, this can mean their energy usage won't be as low as they expect. This could result in higher than expected energy bills and less money available to cover other household expenditure.

Ongoing support

11. Provide regular 'heating control refresher' support and seasonal assistance at the start of the heating season. Make information and support on the heating system easily accessible both in a tenants pack and via your tenant support resources.
12. Provide in-house support or access to independent advice to assist families with energy-related issues, including support on switching supplier, applying for utility bill discounts, sign-up to priority service registers and help with energy billing and debt issues.
13. Address heating system and plumbing repairs quickly to avoid unhealthy living conditions and the development of problems caused by damp and mould.



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