Greener, Cleaner, Cheaper

How new build homes are saving buyers money and cutting emissions

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HOME BUILDERS FEDERATION

Introduction

New build home buyers save £112 million per year

By purchasing a new home rather than an older, less energy efficient property, last year's new build purchasers are saving 576,000 tonnes of carbon emissions meaning that they are doing their bit to reduce the country's greenhouse gas emissions and saving themselves hundreds of pounds per year as well.

With new homes generating only around one-third of the carbon produced by the average older property each year, its impact on the environment and climate change is far lower than that of the existing housing stock.

Just under 18 million homes in England were built before 1980 with these properties typically being the least energy efficient among the housing stock. Accounting for 73% of all homes in England, if all of these dwellings were brought up to the standard of the average new build property, or replaced by new homes, the country's annual carbon emissions would be reduced by 42.6 million tonnes.

On average, owners of new homes save £435 on household bills per property each year, totalling £112 million in savings in the year to September 2021. For buyers of new houses the savings are even greater. The annual £555/ £46 per month that the average new build house buyer saves is equivalent to:

Cinema tickets and popcorn for a family of four once a month for a year

A coffee from Pret every working day for the year

The average premier league season ticket

Three weeks of the average mortgage

With households in the UK accounting for over 20% of greenhouse gas emissions each year, it is unsurprising that the energy efficiency of homes, and how to improve this, has risen up the political and social agenda in recent years. The home building industry has continued to build homes to changing requirements, using new materials, methods, and technologies to maximise the energy efficiency of the new properties and meet the demand of an increasingly environmentally conscious consumer base.

The impact that this is having on the UK's progress towards net zero is undisputable, with carbon emissions from new build homes significantly lower than the average older property.

Although the environmental impact is reason enough to continue improving the energy efficiency of the country's housing, there are many other positive impacts that a new build home can provide. In particular, and in light of spiralling energy costs over recent months and years, household bills such as heating and hot water are significantly reduced for owners of new build properties.

Purchasing a new home rather than an older, less energy efficient property, will save 576,000 tonnes of carbon emissions

Methodology

The Department for Levelling Up, Housing and Communities regularly publishes updated statistics on Energy Performance Certificates (EPCs) in the UK, which breaks down the rating of EPCs allocated to different property types, and the carbon emissions, the running costs and according to whether the home is new or 'existing'.

Using this data, this report attempts to quantify the savings made by new home owners when it comes to energy use and household bills and the significant reduction in carbon emissions from new build properties.

The data sample was made up of just under 1.7 million properties, including 256,734 new builds and 1,408,772 existing dwellings. It is important to note that of the base of existing dwellings, these will encompass a broad range of properties by age, with some being a few years old but many being decades or even centuries old.

Energy performance certificates

All properties built, sold or rented in the UK must carry an Energy Performance Certificate (EPC), which contains information about a property's energy use and typical energy costs by giving it a rating from A (most efficient) to G (least efficient).

EPCs were introduced by the EU in 2007, and the requirements have remained in operation in the UK post-Brexit. The regime has continued to grow in importance in recent years, with the 2017 Clean Growth Strategy confirming a government ambition for as many homes as possible to achieve EPC band C by 2025. In the coming years, landlords will not be able to rent out the poorest performing properties and mortgage lenders are expected to have to begin to account for the energy performance of their loan books.

Political context

While new builds have long offered more energy efficient and cheaper to run homes, the importance of this has become even greater in recent years amid an increasing focus on environmental issues and rising energy costs. Government policies and initiatives to fight climate change have brought a host of new regulations and standards for housing to meet, such as the Future Homes Standard, which aims to ensure that new homes produce at least 75% lower carbon dioxide emissions compared to those built to previous standards, and the banning of the installation of all new gas boilers by 2035.

Owners of older homes face extensive, time-consuming, and disruptive measures to get their homes up to standard. This will also often come at great cost to these homeowners, who will have to pay for retrofitting works or see higher energy bills over the long term. Despite government funding to incentivise consumers to retrofit their homes, it is likely they will still face significant costs.

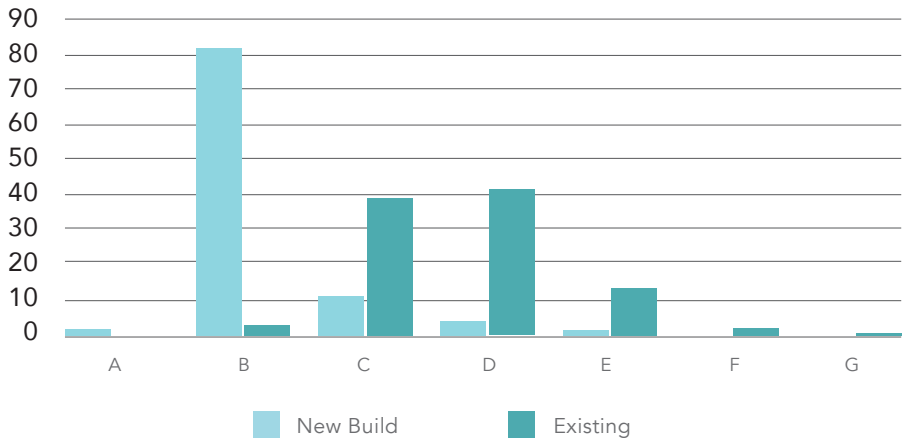
The recent Heat and Buildings Strategy, which announced the ban on the installation of new gas boilers from 2035, provides grants of up to £6,000 for heat pump installation. However, according to research commissioned by the government's own Committee on Climate Change, the cost of retrofitting existing homes is likely to be much higher than this, estimated to be round £9,000 for an average sized semi-detached home and more for larger homes. Analysis suggests that it is around £6,500 cheaper to install a heat pump in a new build than to retrofit the work.

In comparison, due to the use of up-to-date technology and materials, as well as the ability of developers to adapt to evolving new requirements, new build homes are built to much higher standards. Greater energy efficiency measures are embedded from the point of construction, homes are built to a layout that optimises insulation and airflow, and the upgrades that older homes may need are a standard requirement.

Energy ratings

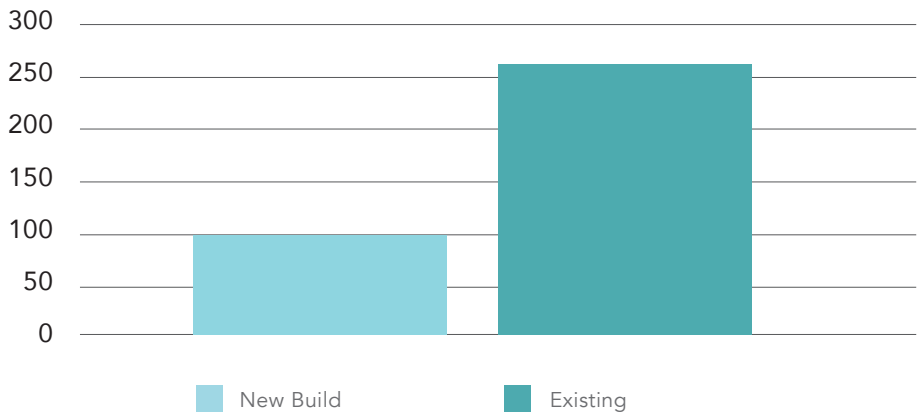
New build homes tend to carry much higher EPC ratings than existing dwellings. For the dwellings logged in the 12 months to September 2021, around 84% of new builds are rated A-B for energy efficiency, while just 3% of existing properties reached the same standard. In contrast, 58% of existing dwellings had an efficiency rating of D-G, as compared to just 5% of new builds.

Proportion of properties in each EPC category (%) - year to September 2021



The difference in these ratings has a significant impact on many other factors including energy use, running costs and carbon emissions. Existing dwellings in the UK used an average of 264.4 kWh/m2 per home over the year, whilst new builds only used 100.4 kWh/m2 per home. The energy saved by new build owners totalled 42 million kWh/m2 over the 12 months.

Average energy use per dwelling (kWh/m2 pa) - year to September 2021



Bills

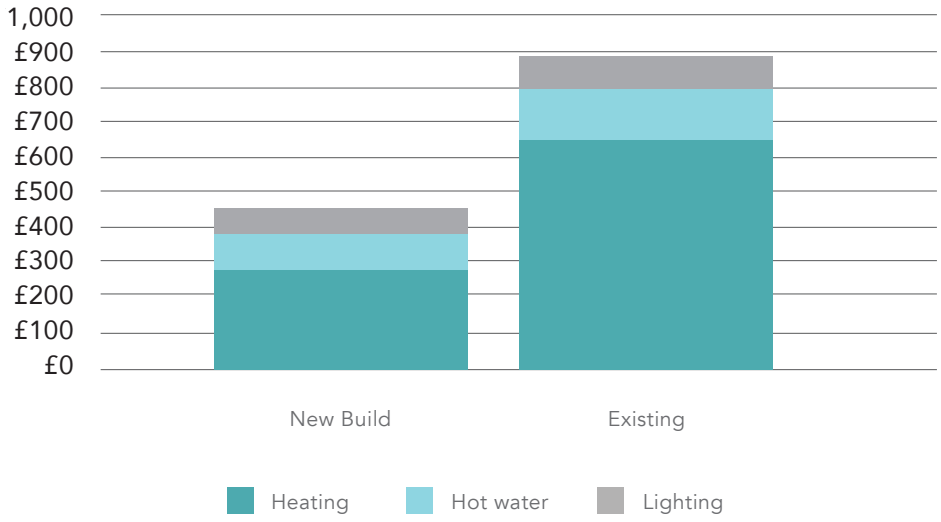
Having a more energy efficient property significantly reduces household bills. The running costs for all new build homes issued with an EPC in the 12 months to September 2021 came to approximately £116 million. If these homes had been built to the same standards as the existing properties in the sample, running costs would have been around £228 million. So collectively, owners of new build homes were able to save an estimated £112 million over the course of the year, approximately £435 per dwelling.

For owners of houses, rather than flats or bungalows, the savings are even more substantial. The combined bills for older houses cost an average of £1,029 per year, compared with £474 for the average new house, a saving of £555 per year.

Heating costs saw the biggest differential costs between the two types of property. For owners of an older home, heating bills were, on average, £666 per dwelling a year. For new build homes, heating bills were 59% cheaper, costing an average of £271 over the 12 months and totalling a saving of £395. The data also showed that homeowners in existing properties paid an average of £82 a year for lighting and £141 a year for hot water, as compared to new build homeowners who paid an average of £70 and £113 respectively.

In total, the yearly bill for owners of older properties was £890, almost twice as much as the annual bill for a new homeowner, which was £455.

Average cost per dwelling (£) - year to September 2021

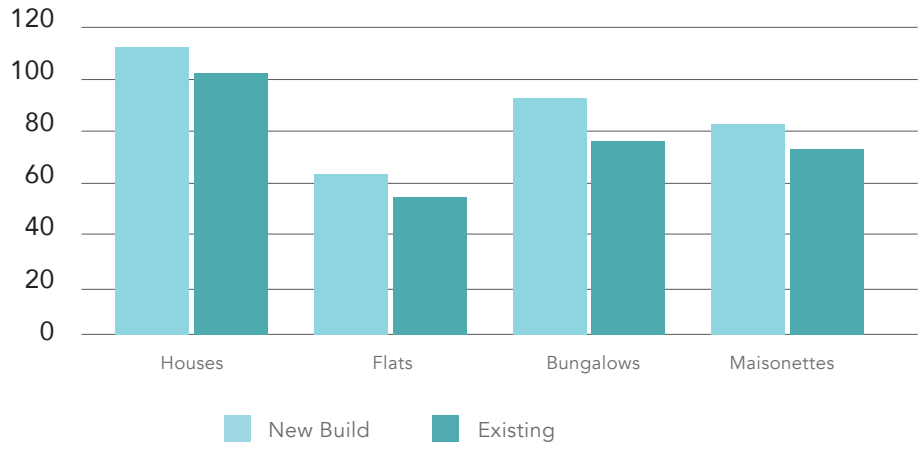


Looking at the costs by type of property, a new:

- House is 63% cheaper to heat than its older equivalents
- Flat is 46% cheaper to heat than its older equivalents
- Bungalow is 50% cheaper to heat than its older equivalents
- Maisonette is 59% cheaper to heat than its older equivalents

These savings are even more significant when the size of the properties is taken into account. Larger properties typically require more energy to heat, and it would be expected that the bills are therefore higher. However, for the properties issued with an EPC in this dataset, new builds are, on average, 7.4% larger than older properties with this trend consistent across all dwelling types - the average new build house was 10.4% larger than a second hand house; new flats were 9.6% larger than existing flats and new bungalows were 22.5% larger than older bungalows. Still, as demonstrated above, the bills for new build homes are considerably lower than existing dwellings.

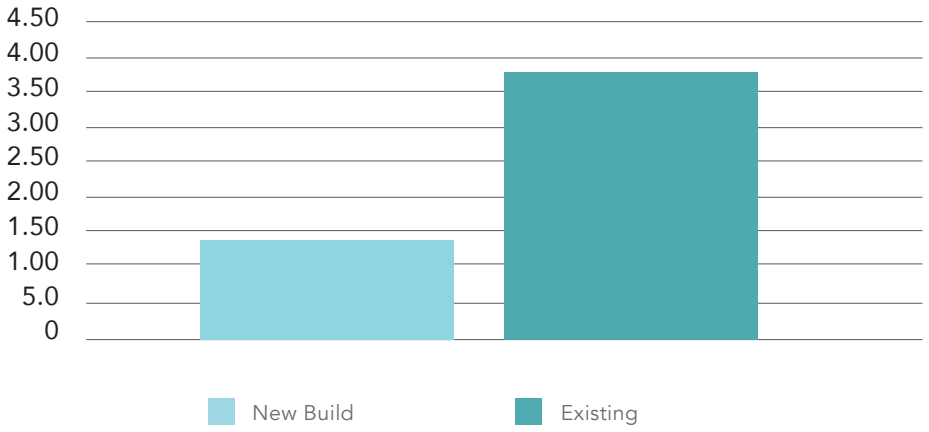
Average floorspace by type of property issued with an EPC, - year to September 2021



Carbon emissions

Not only are new build homes much cheaper to run than older properties, but they are also significantly better for the environment. New build homes accounted for 15.4% of EPCs, 16.4% of the floorspace, but just 6.4% of the total annual CO2 emissions. The data provided by the government finds that the average existing property emits 3.81 tonnes of carbon per dwelling each year. Contrastingly, new build homes emit 1.43 tonnes of carbon dioxide per year, making a saving of 2.38 tonnes of carbon per house.

Average carbon dioxide emissions (tonnes pa) per dwelling over the year to September 2021



New home occupiers are reducing carbon emissions by 576,000 tonnes each year, compared to if they had bought an equivalent older property. If all the existing dwellings in this sample had been built to the same energy standards as the new builds, there would be a saving of over 3.3 million tonnes of carbon dioxide emissions over just 12 months. This is equivalent to over 3,000,000 return flights between London and New York.

Breaking down the carbon emission savings by type of property, a new:

- House generates 64% lower carbon emissions than older properties of their type
- Flat generates 53% lower carbon emissions than older properties of their type
- Bungalow generates 58% lower carbon emissions than older properties of their type
- Maisonette generates 52% lower carbon emissions than older properties of their type

Conclusion

With 95% of new build properties rated A-C for energy efficiency, and the majority of these rated A or B, the benefits that new build homes bring are irrefutable. Owners of new build homes use less energy, save large amounts of money on bills and considerably reduce their carbon emissions.

As the government and other stakeholders step up their work to reduce greenhouse gas emissions in the UK and reach the net zero targets, it will be vital to harness the benefits that new build homes offer. Further steps could be taken to encourage consumers to buy more energy efficient homes, such as increasing lender incentives to offer green mortgages.