July 2023

Watt a Save

The energy efficiency of new build homes

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HBF
HOME BUILDERS FEDERATION

Introduction

New build homebuyers are saving over £400 million a year in energy bills, as well as collectively reducing carbon emissions by over 500,000 tonnes.

The average new build homebuyer saves £135 a month on energy bills, amounting to more than £1,600 a year, compared with purchasers of equivalent older properties. This saving rises to over £180 per month for purchasers of houses, rather than flats or bungalows, totalling £2,200 a year.

While energy prices have begun to come down from the peak last winter, new build homes are still saving homeowners thousands of pounds each year. As the industry progresses towards the Future Homes Standard, these savings will become greater still, with new homes being started today being built to even higher energy efficiency standards following a change to regulations that took effect from last summer. For homes built after 2025, when the Future Homes Standard is expected to come into effect, energy bills for the average new build property are expected to be cut by 70% as compared to the average older property.

On top of these financial savings, new build properties are significantly more environmentally friendly than older properties. The average new house emits just one-third of the carbon of typical older houses, with each house saving 2.8 tonnes of carbon per year.

As builders prepare for the Future Homes Standard, which is expected to come into force in 2025, the country's new build housing stock will deliver even greater carbon savings. Under the new regulations, new homes will emit just 0.36 tonnes of carbon a year, a tenth of the amount of the average existing property.

Average property in the year to March 2023

	Energy usage (kWh)	Bills	Carbon emissions (tonnes)
New Build	9414.13	£1,317.98	1.4
Existing	21,040.91	£2,945.73	3.6
Saving	11,626.79	£1.627.75	2.2
% Saving	55%	55%	60%

Methodology

The Department for Levelling Up, Housing and Communities (DLUHC) 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 and energy use of new build and existing properties that have been issued with an Energy Performance Certificate during the period. In the year to March 2023, 247,000 new build EPCs and 1.4 million EPCs for older properties were issued.

The projected energy bills and savings used in this report are based on average energy unit prices under the price cap as announced by Ofgem on 25 May 2023.

Context

Over the last couple of years, concerns and conversations around household energy usage and utility bills have dominated conversations in politics, media and daily life. As such, having an energy efficient home has never been more important.

England has one of the oldest and least energy efficient housing stocks in Europe, with over 70% of our homes built before 1980.

As the Government pushes on to meet net zero targets, owners of older homes face costly, time-consuming, and disruptive retrofit measures to get their homes up to more modern standards.

In comparison, new build homes are built to evolving standards, using the most up to date technologies and building materials to ensure the highest level of energy efficiency is embedded at the point of construction.

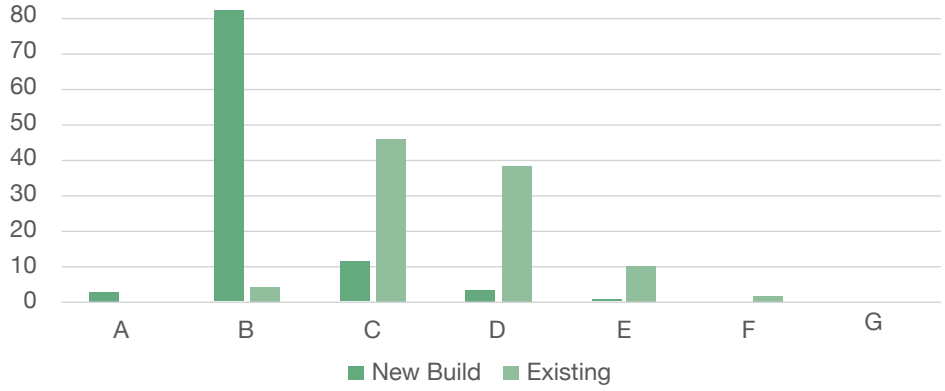
Energy performance certificates

Since 2007, all homes in the UK have been required to have an EPC before they are sold or let. The system was introduced in the hope that energy labelling would raise awareness of energy efficiency and encourage upgrading to make properties more marketable.

New build homes are consistently rated with much higher EPCs than existing dwellings. Data from the Office for National Statistics finds that the average existing property in England has an efficiency score of 67 – equivalent to an EPC rating of D. In contrast, homes built from 2012 onwards had a score of 83 – equivalent to an EPC rating of B.

In the year to March 2023, 85% of new build homes were rated A or B for energy performance, while just 4% of existing properties reached the same standards. In contrast, over 50% of existing properties were given an EPC of D or below, while just 3.9% of new build homes were of the same standard.

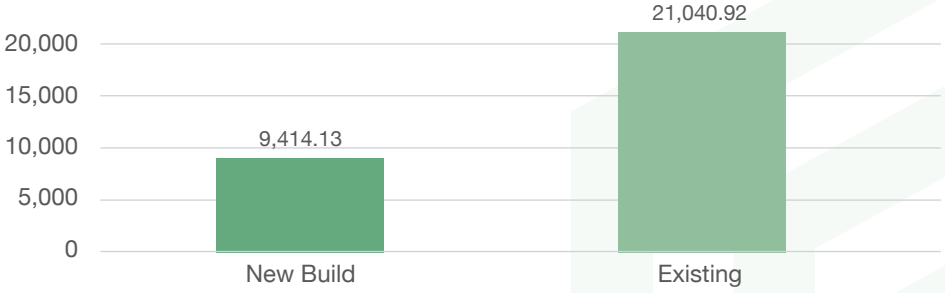
EPCs of new build vs existing properties



Energy use

The improved energy efficiency of new build homes means that they require much less energy for the day to day running of a household. The average new build property uses approximately 9,414 kWh a year, as compared to older properties which use an annual average of 21,040 kWh meaning that the average new build uses over 55% less energy a year.

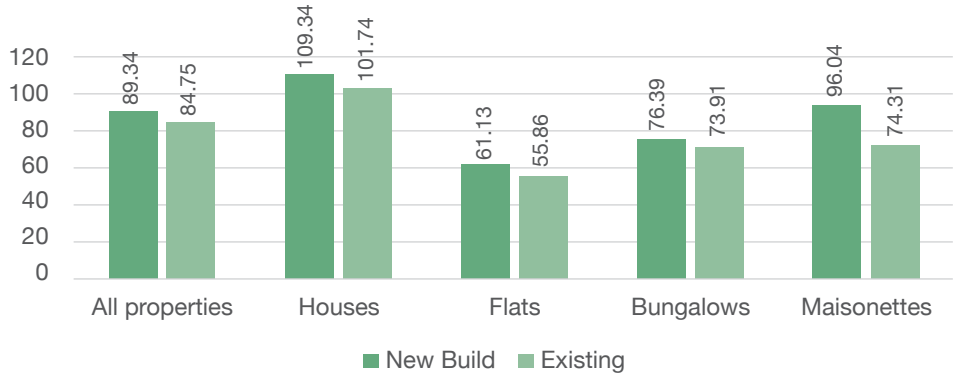
Average annual energy usage – new build and existing properties



While some critics of new builds may claim this is due to new build properties being smaller, the average floorspace figures in DLUHC's data finds that new builds are not only bigger on average, but also use less energy per m2.

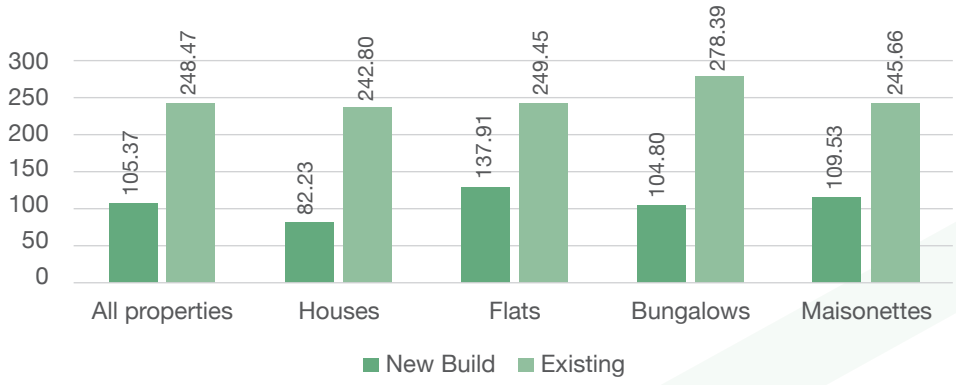
The average new build property in this dataset had floorspace of 89.34m2, while the average existing property issued with an EPC had floorspace of 84.75m2. This trend was consistent across all property types, as displayed in the graph below.

Average floorspace of new build and existing properties, year to March 2023 (m2)



The average new build used 105.37kWh per m2 per year, while the average existing property used 248.47kWh per m2. As the graph below shows, across all property types, new builds used significantly less energy per m2.

Energy use per m2 (kWh/PA)



Bills

Due to new build properties requiring much less energy, buyers of these properties will see significantly lower bills.

Average annual costs

	New Build	Existing	Savings	% Saving
All properties	£1,317.98	£2,945.73	£1,627.75	55%
Houses	£1,258.70	£3,458.35	£2,199.65	64%
Flats	£1,180.28	£1,950.74	£770.45	39%
Maisonettes	£1,171.42	£2,542.02	£1,370.60	54%
Bungalows	£1,409.03	£2,896.27	£1,487.23	51%

Average monthly costs

	New Build	Existing	Savings	% Saving
All properties	£109.83	£245.48	£135.65	55%
Houses	£104.89	£288.20	£183.30	64%
Flats	£98.36	£162.56	£64.20	39%
Maisonettes	£97.62	£211.83	£114.22	54%
Bungalows	£117.42	£241.36	£123.94	51%

The average older property cost nearly £3,000 a year to run, while the average new build cost £1,317 – a 55% saving.

This collective saving for new build purchasers totals over £400 million.

While energy prices have slowly started to come down, they remain much high than recent years and the volatility in costs seen over the last couple of years has only solidified the importance of an energy efficient and low-cost home.

Despite an average of £135.65 monthly saving, increasing to £183.30 for houses, buyers of these properties are assessed against the same mortgage affordability criteria as those buying older properties because projections on annual expenditure on energy bills is taken from national averages rather than offering a true picture of the running costs of the property being purchased. More than 15 years after the introduction of Energy Performance Certificates, a functioning market for 'green mortgages' is still absent.

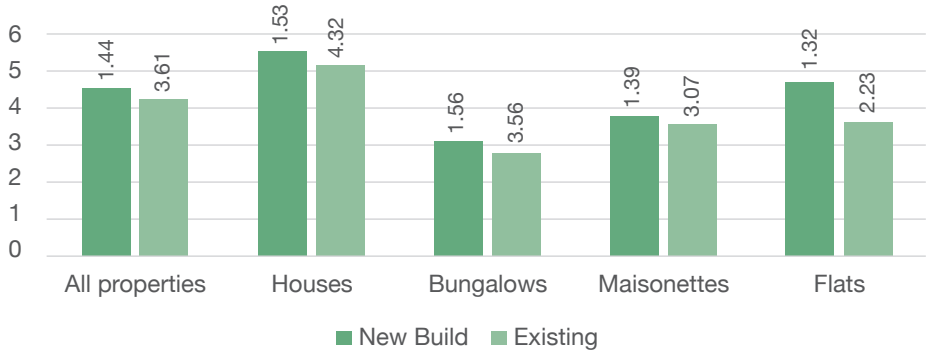
With mortgage affordability increasingly important to many households, HBF is encouraging lenders to develop mortgage products that offer tangible, financial incentives for homebuyers to make environmentally conscious, energy saving choices.

Carbon emissions

While the financial benefits are reason enough to buy a new build home, not only do they reduce bills for purchasers, but they also significantly reduce the amount of carbon emitted each year.

Due to the decreased energy usage as outlined earlier in this report as well as new technologies, improved industry knowledge and low carbon heating, in the year to March 2023, the average new build emitted 1.4 tonnes of carbon, just 40% of the 3.6 tonnes emitted by an older property, a saving of 2.2 tonnes per year. This saving rises to 2.8 tonnes per year for houses, the equivalent of a return flights from London to Tokyo.[1]

Annual carbon emissions of new build vs existing properties (tonnes)



In total, the new build homes built in the year to March 2023 reduced annual carbon emission by 500,000 tonnes compared to if they were built to the same standards as the older property.

If all the existing homes in this dataset had been built to the same standards as the average new build homes, annual carbon emissions could have been reduced by almost 3 million tonnes.

[1]https://www.carbonfootprint.com/calculator.aspx

Looking ahead

Over recent years, the Government has announced multiple changes to building regulations to improve the efficiency of new build properties and to future proof them for net zero. Last year (June 2022), updates to Part L of the Building Regulations came into force. With a 12 month transition period, the result of these changes will ensure homes built from June 2023 produce 31% less carbon emissions as compared to previous standards.

This uplift to Part L is a stepping stone to more significant changes to the Building Regulations, due to come into force in 2025 in the form of the Future Homes Standard (FHS). The FHS will require CO2 emissions produced by new homes to be 75-80% lower than from the 2013 standard of Building Regulations.

These new regulations will see an even more dramatic contrast between the carbon emissions from new build homes and the older properties that make up the majority of our country's housing stock.

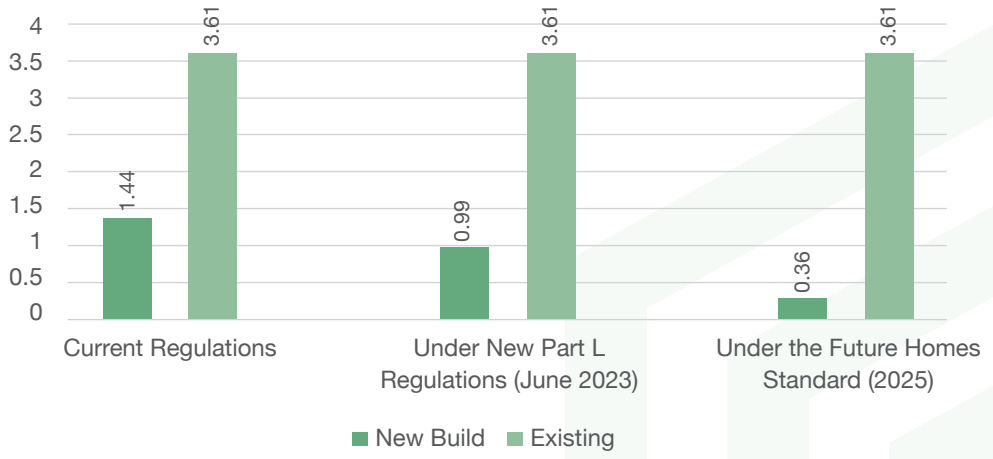
While the carbon emissions from the average existing property will remain the same over the next couple of years, at 3.6 tonnes a year, the emissions from a new build home will drop from 1.4 tonnes, to 1.05 tonnes under the Part L uplift and to 0.36 tonnes under the Future Homes Standard.

In other words, homes built from 2023 will emit 29% of the amount of carbon of the average existing property, and homes built from 2025 will emit just 10%.

This means that once the FHS is implemented, for every 300,000 new homes built – the Government's annual housing target – carbon emissions will be reduced by nearly one million tonnes a year as compared to if these properties had been built to the performance standards of the average existing property in England and Wales.

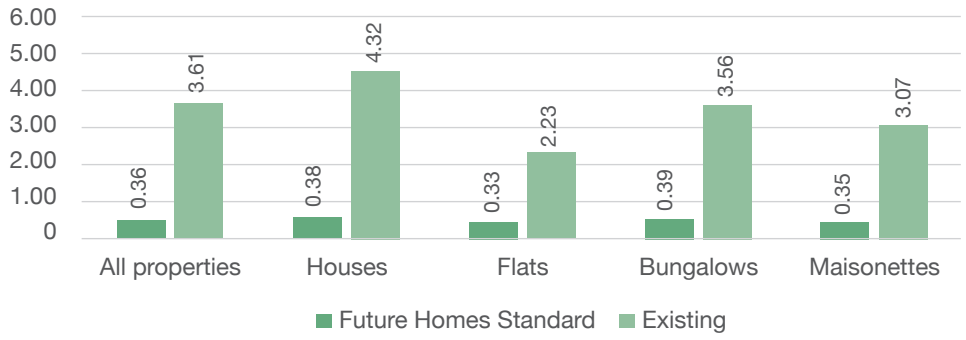
This saving – 975,000 tonnes – is enough to drive round the equator 150,000 times.

Average annual carbon emissions from new build and existing properties under different building regulations



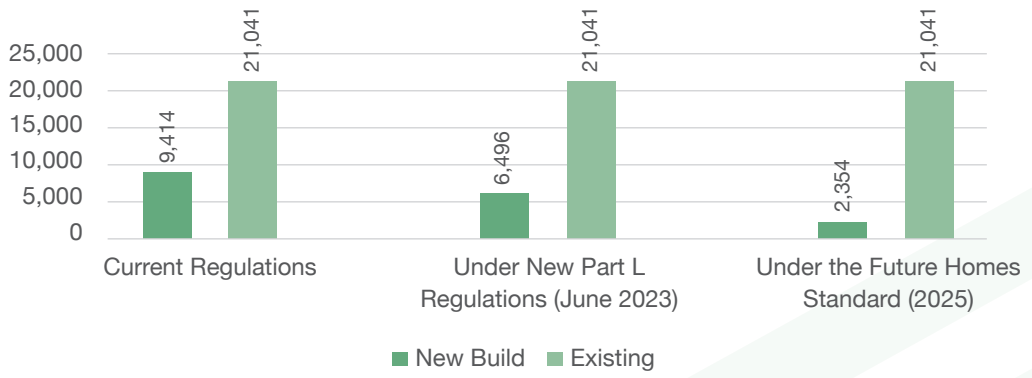
Looking at the impact of the FHS across all property types and sizes, the drastic cut to carbon emissions that new build properties will see places the home building industry as a key player in the country's efforts to reach net zero.

Annual carbon emissions – homes built to the FHS compared to existing properties (tonnes)



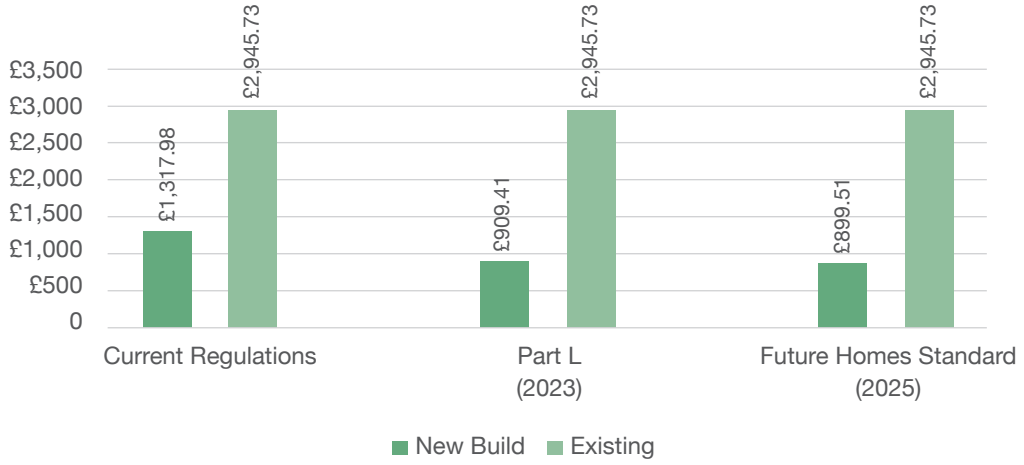
On top of the reduction in carbon emissions that the changes to Building Regulations enforce, these changes will also result in a significant reduction in energy use, with further improvements to energy efficiency measures embedded into new build homes.

Projected average annual energy use of new build and existing properties (kWh)



Homes built under the Future Homes Standard will be more heavily reliant on electricity, rather than gas. While electricity is more expensive than gas on a per unit basis, the significant reduction in energy consumption will still see new build homes be far cheaper to run and even more environmentally friendly.

Average annual bill of new build vs existing properties



Based on current prices under the price cap announced by Ofgem in May 2023, a new build property that is 100% electric will cost just under £900 a year to power. This is just 30% of the cost of the average existing property which, using a mix of electricity and gas, will cost £2,945 a year.