

40 facts

Homes, housing and house building today



Informing the debate

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Welcome and introduction

I am often asked what are the best and most accessible sources of information about housing in the UK. A quick glance at the list of sources used for this publication gives the answer. There are a lot of different sources, but not all are easily accessible, and putting them all together in a way which gives a clear picture is something of a challenge. That is why we are publishing this latest guide from the NHBC Foundation, which puts together useful facts and figures about UK housing and house building.

Many of the facts included feel reasonably familiar; for example the evidence that the UK has an ageing population. The proportion of people aged 75 and over grew from 7.2% to 10.4% between 1977 and 2017 and is expected to reach 15.4% (over 15 million) by 2037. Also the media makes regular mention of the so-called 'boomerang generation' of adult children returning to their parental home having previously lived away – the number of households with 20 to 34-year olds living with their parents has indeed increased from 2.6 million in 2007 to 3.4 million in 2017.

Clearly these demographic changes are of great significance to house building in the UK, creating opportunities for the industry to increase the output of homes targeted at specific groups – more homes suitable for multigenerational living as well as for those who are approaching or in retirement.

The quite marked decline in home ownership in recent years – down nearly 7% between 2000 and 2017 for England – is another frequently-reported trend with a major impact on our approach to house building. This downward trend in home ownership is not confined to the UK, but is part of a wider pattern of declining ownership rates observable across Europe.

Other facts contained in this guide are perhaps more surprising. So although England has one of the highest

population densities in Europe (only behind Malta and the Netherlands), the amount of land taken up by homes (including their gardens) is only just over a twentieth of the UK's total land area. Indeed the figure for the land that is covered by buildings alone is estimated at 2.4%. For England, the fact that 44% of new homes were built on brownfield land during 2016-17 means that policies designed to protect our green and pleasant land are, contrary to some newspaper headlines, still having an impact.

The guide presents an interesting picture of an industry that is firmly at the heart of the economy, with an estimated £38.4 billion invested in creating new homes in 2017, accounting for about 1.5% of total GDP. In 2016 UK house-building firms directly employed almost a quarter of a million people, and this excludes the large number of subcontractors who are active in the sector. It is estimated that every UK home built each year creates one full-time job directly in house building and, in total, about 3 full-time jobs across the whole economy.

There is also encouraging evidence of greater public support for house building. Whereas in 2010 46% of people were opposed to new housing in their local area, the level of opposition had halved (to 21%) by 2014. Anecdotal reports in the period since suggest that there is growing recognition of the need to build new homes to solve the UK's housing crisis and that, provided care is taken in the design of new housing developments, support will continue to grow.

I hope you enjoy reading this guide and encountering useful and perhaps unexpected findings.

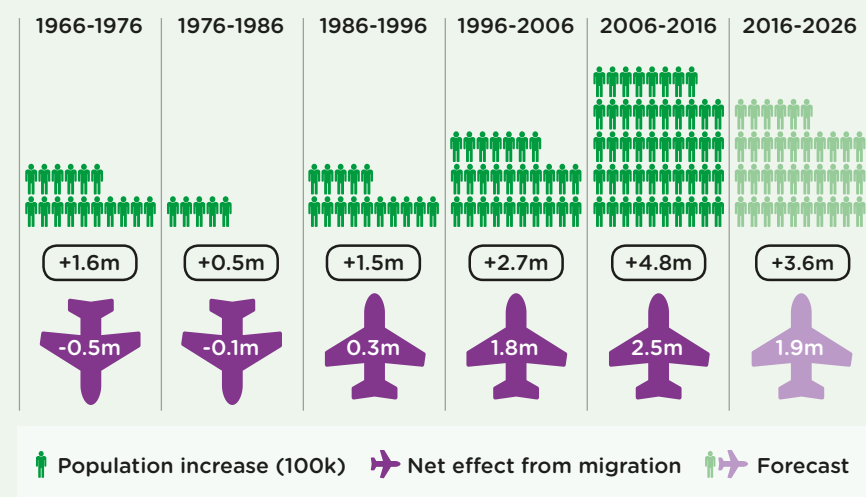
Rt. Hon. Nick Raynsford
Chairman, NHBC Foundation

Who we build for

1 How fast is the UK population growing?

- Between 2006 and 2016 the UK population increased by 7.9%: the fastest 10-year growth rate for 100 years. This contrasts with slow growth in the 1970s and 1980s, when in some years the population actually declined.
- The latest projections suggest the UK population will grow by 3.6 million between 2016 and 2026, a 5.5% rise.
- The number aged 75 or older is projected to rise by 1.8 million between 2016 and 2026, while the number younger than 55 is expected to be unchanged.

UK population change over 10-year periods and forecast



*The UK population was 56.2 million in 1976.
It may exceed 70 million in 2027.*

2 How is the UK population changing regionally?

- London is the fastest growing UK region. Between 2006 and 2016 its population grew by 1.2 million (15.4%) – nearly twice as fast as the UK average.
- The North East's population rose slowest at 3.3% (84,000) between 2006 and 2016, having seen falls up to 2004.
- Over the past 25 years, the proportion of people older than 65 in London increased by a modest 5.9%. This contrasts markedly with some regions, such as the East of England where the proportion of over-65s increased by more than 47%.

3 What's the average household size in the UK?

- The average number of people in a UK household in 2017 was 2.4, according to household estimates, having risen slightly since 2013. The EU average for 2017 was 2.3.
- Census figures for 1961 and 2011 show the average UK household size falling from 3.0 in 1961 to 2.3 in 2011.
- The 2011 census showed household size varying across the UK between 2.2 in Scotland and 2.5 in both Northern Ireland and London.
- The 2011 census found that 1.1 million people do not live in households, but in communal establishments, such as student halls of residence, boarding schools and homeless hostels.

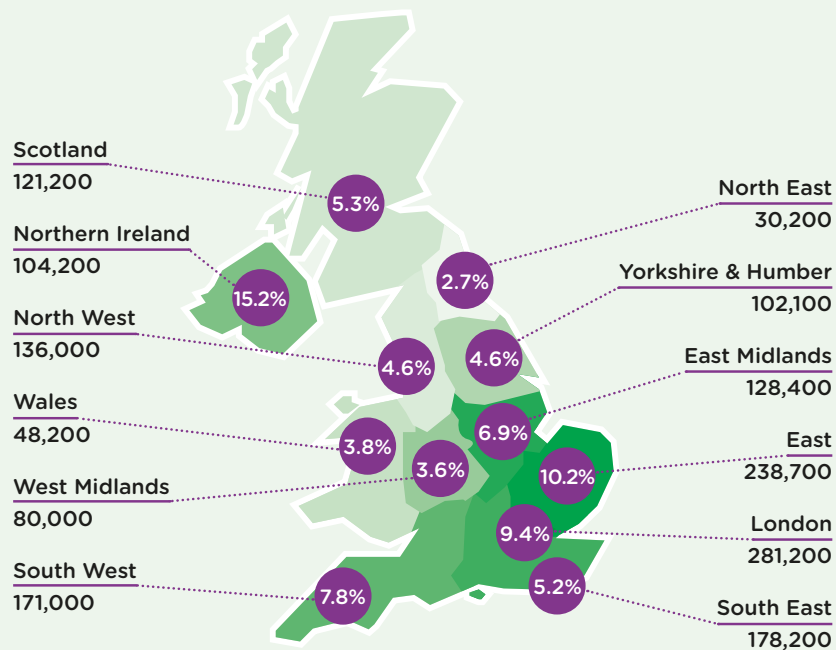
4 How fast is the growth in UK households?

- The number of UK households grew by 1.6 million (6.3%) in the 10 years to 2017 to reach 27.2 million, having grown by 1.7 million (7.3%) in the previous 10 years.
- The fastest growth over the 10 years to 2016 was in Northern Ireland (15.2%). The slowest regional growth was in the North East (2.7%).
- Despite the fastest population growth over the past 10 years, at around 15%, London's household growth was just 9.4%.

5 How is the shape of UK households changing?

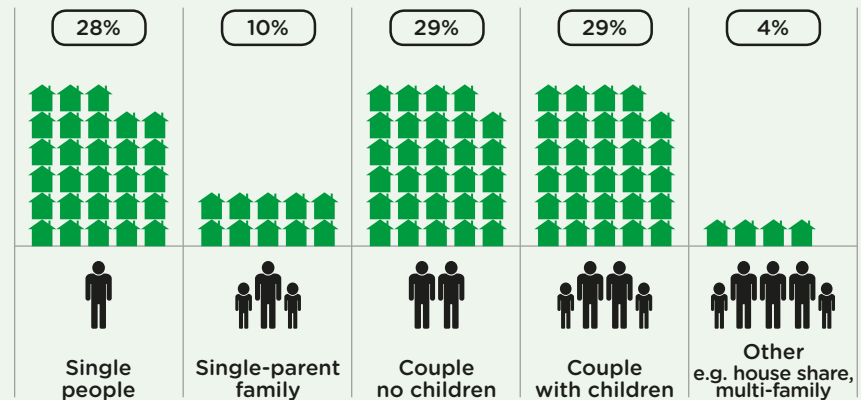
- In 2017, single families with children accounted for 39% of households, about one in four of which are single-parent families.
- Many more 20 to 34-year olds are living with their parents. Such households have increased from 2.6 million in 2007 to 3.4 million in 2017.
- The now significant proportion of people living alone (28%) has grown greatly from the 1960s. It was just 13% in 1961.

Growth in UK households between 2007 and 2017



Regionally household formation has varied enormously across the UK in the past decade.

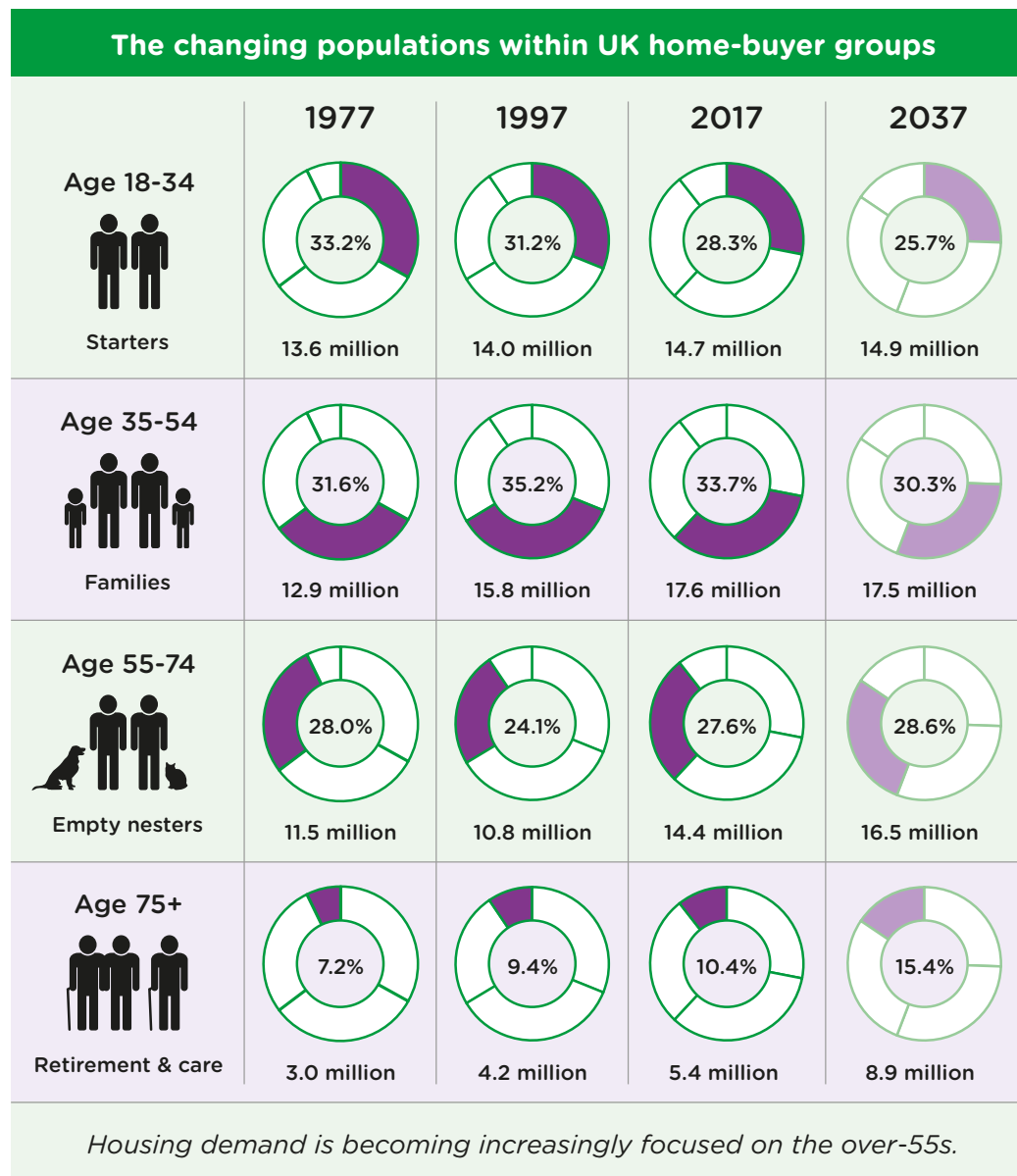
Profile of UK household types in 2017



57% of households consist of just one or two adults.

6 How are the numbers within UK home-buyer groups changing?

- On current projections, 2019 will be the first year when the 55 to 74 age group (mainly baby boomers) outnumber those aged 18 to 34 (mainly millennials). In 1997 the 18 to 34-year olds outnumbered the 55 to 74-year olds by almost 30%.
- This major shift in the structure of age groups will impact on the kinds of homes we need now and in the future.
- The most rapid increase is among those aged over 75. This group is expected to expand by 3.5 million over the next 20 years to reach 8.9 million in 2037.

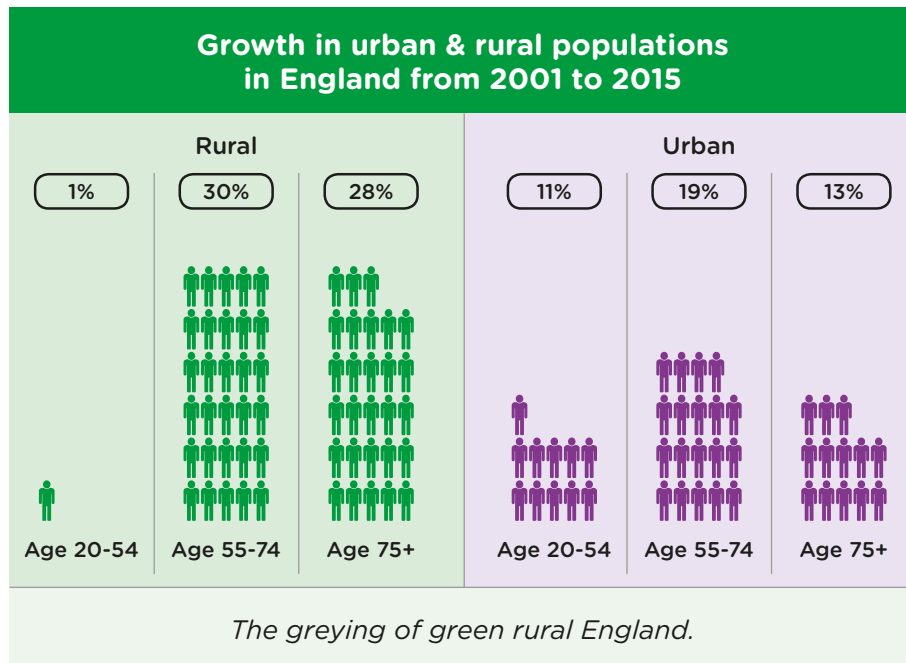


7 How are the age profiles of rural and urban populations changing in England?

- Between 2002 and 2016 the average age in sparse rural areas in England rose from 43.9 to 47.8 years while the average age in major urban conurbations rose marginally from 37.0 to 37.4 years.
- In predominantly rural populations the number of over-55s increased between 2001 and 2015 at almost double the rate observed in predominantly urban conurbations.
- While the rate of growth of over-55s between 2001 and 2015 in predominantly rural populations was greater than within predominantly urban populations, the actual numerical increase in urban populations was far greater than in rural populations.

8 How densely populated is the UK?

- The average population density of the UK in 2016 was 271 people/km², with England at 424, Wales 150, Northern Ireland 137 and Scotland 69.
- The UK is among the more densely populated European nations, with England ranking behind only Netherlands (498) and Malta (1,450).



Land use and where we build

9 How urbanised is the UK?

- 82.8% of people living in the UK in 2016 were defined as 'urban dwellers' by the United Nations, making the UK slightly more urbanised than the average 81.4% for high-income countries.
- The United Nations forecasts urbanisation in the UK will rise above 90% by 2050. The United Nations definition of urban dwellers would include the large proportion of UK households living in a suburban setting.

10 Where are the most homes being planned?

- According to the HBF New Housing Pipeline, there were planning approvals for 391,300 new homes in 2017 across Great Britain. This compares with 202,100 in 2011.
- Regionally, in terms of numbers, London and the South East dominate. Each saw approvals granted for more than 60,000 homes in 2017.
- Ranked according to population, the North West comes out top for 2017 with 7.34 homes planned per 1,000 people. London was close behind with 7.27, followed by the South East at 6.7.

11 How much land is protected from development?

- Green Belt land in England is distributed around 15 urban cores, covering 13% of the land area. Green Belt policy, introduced in the 1930s, is designed to reduce urban sprawl.
- England's designated Green Belt area has increased over time. In 1979 it covered 7,215 km². In March 2017 it was 16,347 km².
- Other protected designations such as National Parks, Areas of Outstanding Natural Beauty and Sites of Special Scientific Interest cover 30% of England's land. Allowing for overlaps, around 40% of England's land has restrictions on development.
- There is one green belt in Wales, 13 in Scotland and 30 in Northern Ireland.



Between them Green Belts, National Parks, Areas of Outstanding Natural Beauty and Sites of Special Scientific Interest cover 40% of England.

12 What kind of land is taken by new homes?

- In the year to March 2017 in England, of the total land used for housing, it is estimated that 56% was non-developed (greenfield) land and about 44% was previously-developed (brownfield) land.
- The proportion of new homes in England (measured as new residential addresses, including conversions) created on brownfield land in the year to March 2017 was 56%, while 44% of new homes were built on greenfield land.
- Over the four years to March 2017 the average annual consumption of non-developed land equated to about 0.02% of England's land area.

Land used for housing in England in 2016-17



Greenfield

3,330 hectares (56%)
Share of new homes built (44%)

Brownfield

2,630 hectares (44%)
Share of new homes built (56%)

Use of brownfield land for housing rose to 70% in 2008 from below 50% in the 1990s and has declined in recent years.

13 How much UK land is taken for housing?

- EU data for 2015 shows UK houses and gardens take up 12,700 km² – 5.1% of the total land area. In England the proportion is 7.9%, Scotland 1.3%, Wales 3.2% and in Northern Ireland 4.5%.
- The overall UK figure for land area taken by houses and gardens is above the 3.0% EU average, but similar to France (4.8%) and Germany (4.7%).

How the UK's land is put to economic use

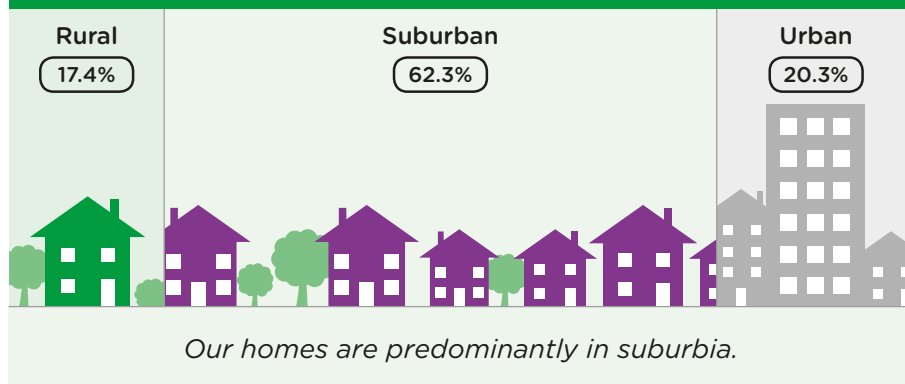


Buildings are estimated to cover just 2.4% of UK land.

14 What kinds of settlements do people live in?

- Suburban residential areas, characterised by large planned housing estates in the outer areas of towns and cities, accommodate most (62.3%) of England's homes.
- City centres and other urban areas in England accommodate 20.3% of homes while areas classified as rural account for the remaining 17.4% of homes.
- Rural/urban classifications can vary, so for consistency the figures used are from the English Housing Survey (2016 stock), but the pattern is representative of the UK.

Where homes are located (England)



The homes we live in

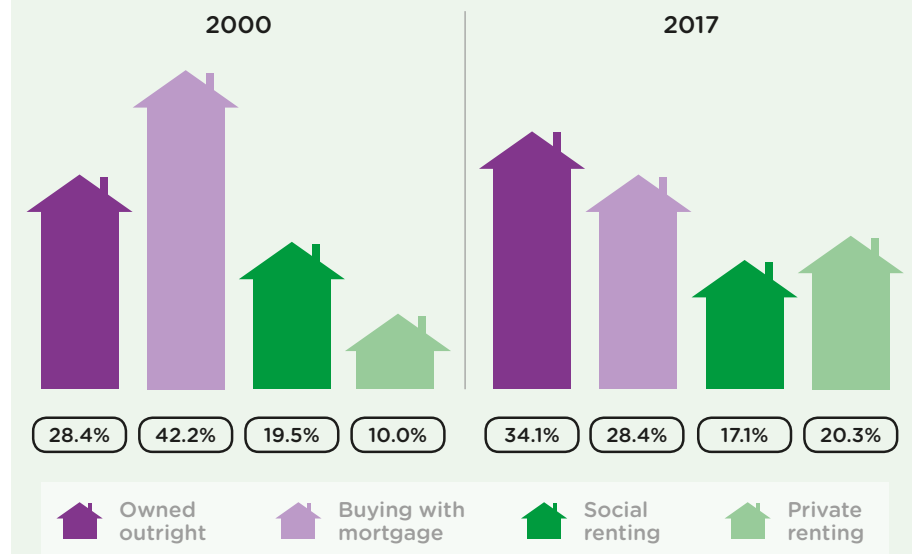
15 How many homes are there in the UK?

- There were 28.7 million homes in the UK in 2017, up about 7.3% over the past 10 years.
- The homes are split: England 23.9 million, Scotland 2.6 million, Wales 1.4 million and Northern Ireland 0.8 million.

16 Who owns UK housing and how is ownership changing?

- In the UK, owner occupation has been falling since hitting a peak of just below 70% in 2002. The proportion of UK homes that were owner-occupied in 2017 is estimated to be 63%.
- About three quarters of the UK stock is owned privately, either owner-occupied or rented.
- The main reason for the fall in owner occupation is a rapid decline in homes owned with a mortgage, reflecting falling home ownership among younger adults: this can be seen in the English Housing Survey data used for the graphic.
- While mortgaged home ownership has fallen in England, outright ownership has risen, reflecting the growing numbers of owners among the elderly, who have now paid off their mortgages.
- In recent years, owner occupation in England has declined within all age groups under 65, while among those above 65 it has continued to rise from 72% in 2007 to 78% in 2017.

Change in housing tenure in England from 2000 to 2017



Outright ownership and private renting rise while mortgaged ownership falls.

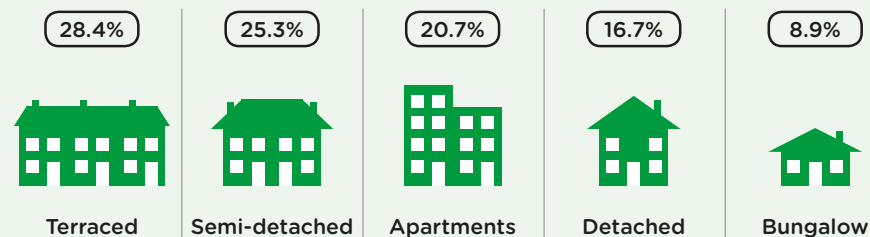
17 How does the UK rate of home ownership compare internationally?

- The most recent Census Hub data from the EU, for 2011, showed 64% of households across the EU were home owners. This is close to the UK Census 2011 figure of 64.2%.
- The rate of owner occupation among households varied widely between countries, with ownership rates generally higher in the former Soviet states. In Romania 94% of households were owner occupiers, while in Germany the rate was below 50%.
- For most large developed nations, rates of owner occupation tend to be between 60% and 70%, for example as in Canada (68%), Australia (67%), USA (64%) and Japan (62%).
- Home ownership has been in decline in many nations in recent years. Most European nations have seen a fall in the share of the population that live in owner-occupied homes over the past five years.

18 What types of homes do UK people live in?

- Definitions of housing types differ across the UK and for clarity the graphic shows English housing, as evaluated in the 2016 English Housing Survey.
- For comparison the Scottish House Condition Survey 2016 found apartments and tenements dominated, accounting for 36% of the housing stock. Detached homes accounted for 23% of the Scottish stock, with semi-detached accounting for 19% and terraced 22%.
- The Census 2011 found that caravans, mobile homes and temporary structures accounted for 112,000 homes and housed three people in every 1,000.

English house types in 2016



Nearly 54% of the English stock is either terraced or semi-detached.

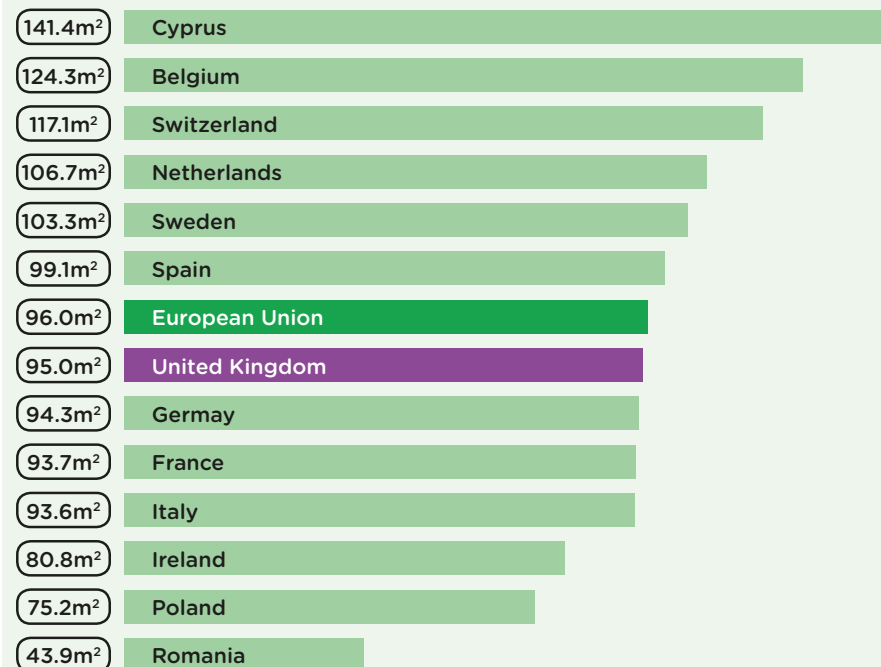
19 What types of homes do other Europeans live in?

- Eurostat figures for 2016 show that 42% of Europeans lived in apartments, 24% lived in semi-detached or terraced homes and 34% in detached houses.
- In Spain two thirds of people live in apartments, in Germany 57%, in Italy 53% and in France 32%. Apartments are less popular in the crowded lowlands: in the Netherlands the proportion of apartment dwellers is 19% and in Belgium 22%.
- For comparison just 14% of people lived in apartments in the UK, the lowest apart from the Republic of Ireland at 7%.

20 How big are UK homes compared with those in other European countries?

- The average usable floor area of occupied UK homes is approximately 95 m², taking English and Scottish housing surveys for reference. This is broadly comparable with the stated average useful floor areas for larger nations, such as Italy, France and Germany, recorded by Eurostat.
- International comparisons of average floor areas of homes should be treated cautiously, as housing type and design and climate have a bearing on interpretation, as well as the method of measurement used. Data for the UK house sizes is not provided within the EU dataset, but English and Scottish housing survey data used to produce a UK average provide a reasonable basis for comparison as the English Housing Survey measures 'usable floor area' and Eurostat measures 'useful floor area' (see Note 1, page 20).

Average home sizes in selected European countries

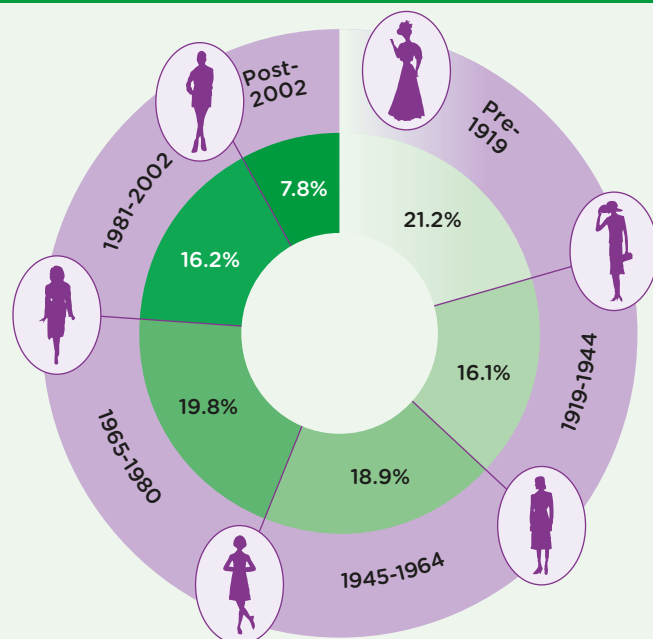


In terms of floor area, UK homes are middle ranking among European countries.

21 How old is the UK housing stock?

- Eurostat data shows the UK has one of the oldest housing stocks in Europe, with the smallest proportion of homes built after 1970 and the second highest proportion built before 1919.
- The English Housing Survey shows that less than a quarter of English homes are less than 35 years old, while more than 20% are over 100 years old.
- Currently few homes are demolished: over the past five years an average of 11,000 homes were demolished in England each year.

The age of homes in England

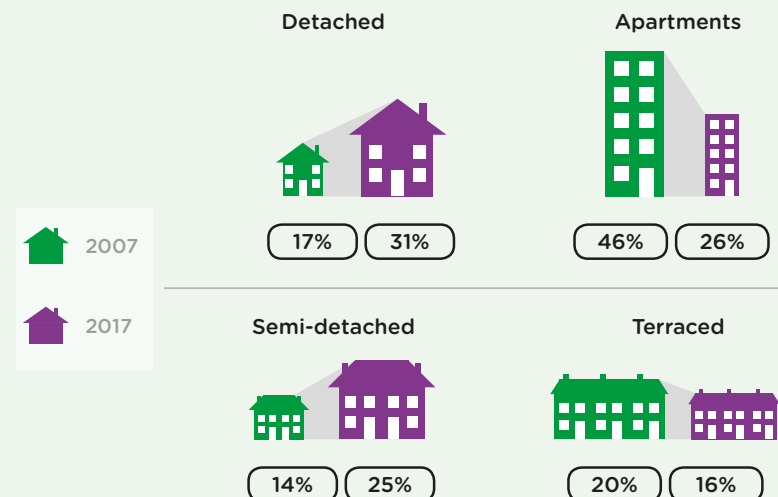


At current demolition rates almost half of the current homes in England will be standing in 1,000 years time.

22 What types of homes do we build in the UK?

- The mix of new homes varies to meet demand. In 2017, detached homes were the most common type of housing built, whereas in 2007, apartments were by far the most common home type built.
- Semi-detached homes have seen a resurgence between 2007 and 2017; their proportion increasing by 12%.
- The types of homes built also vary greatly between locations. In 2017 in London 91% of the new homes built were apartments and just 1% were detached houses. In the North East just 5% were apartments and 49% were detached houses.
- Bungalows (not shown on the graphic) accounted for about 2% of homes built in both 2007 and 2017.

Type of homes built in the UK in 2007 and 2017



The biggest change since 2007 is the 20% fall in the proportion of apartments in overall output.

23 How often do households move home?

- On average over the five years to March 2017, one in ten households in England moved home each year, according to the English Housing Survey.
- Renters move more often than home owners and younger people move substantially more than older people. In recent years, households aged under 45 were about five times more likely to move than households older than 45.

10% of England's households move home each year

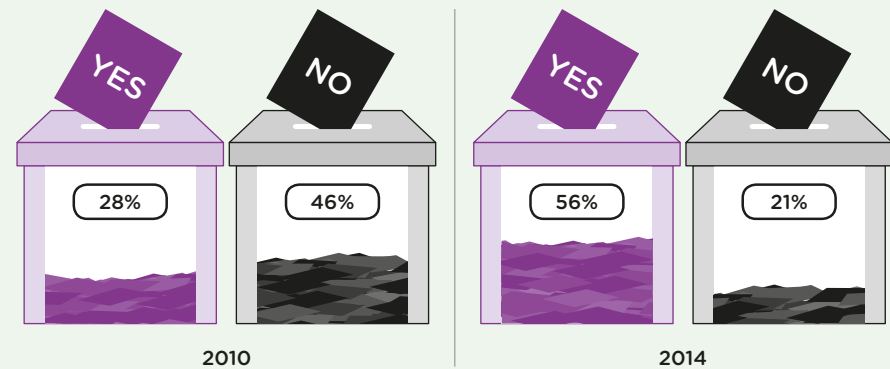


Since 1984, between 8% and 12% of households have moved each year.

24 How is the public opinion to building new homes changing?

- Government opinion polling in 2014 found a majority of the public supported house building in their local area. This is a near reversal of attitudes in 2010 when polling found more people would oppose than support new homes being built locally.

A shift in public opinion to support building new homes



The share of those in favour of new local housing doubled between 2010 and 2014.

25 How much do UK households spend improving and maintaining homes?

- According to ONS family spending data, in the 2017 financial year the average UK household spent £450 a year on the maintenance and repair of their home.
- On average, for the same year, a further £1,350 was spent on major improvements to their home.

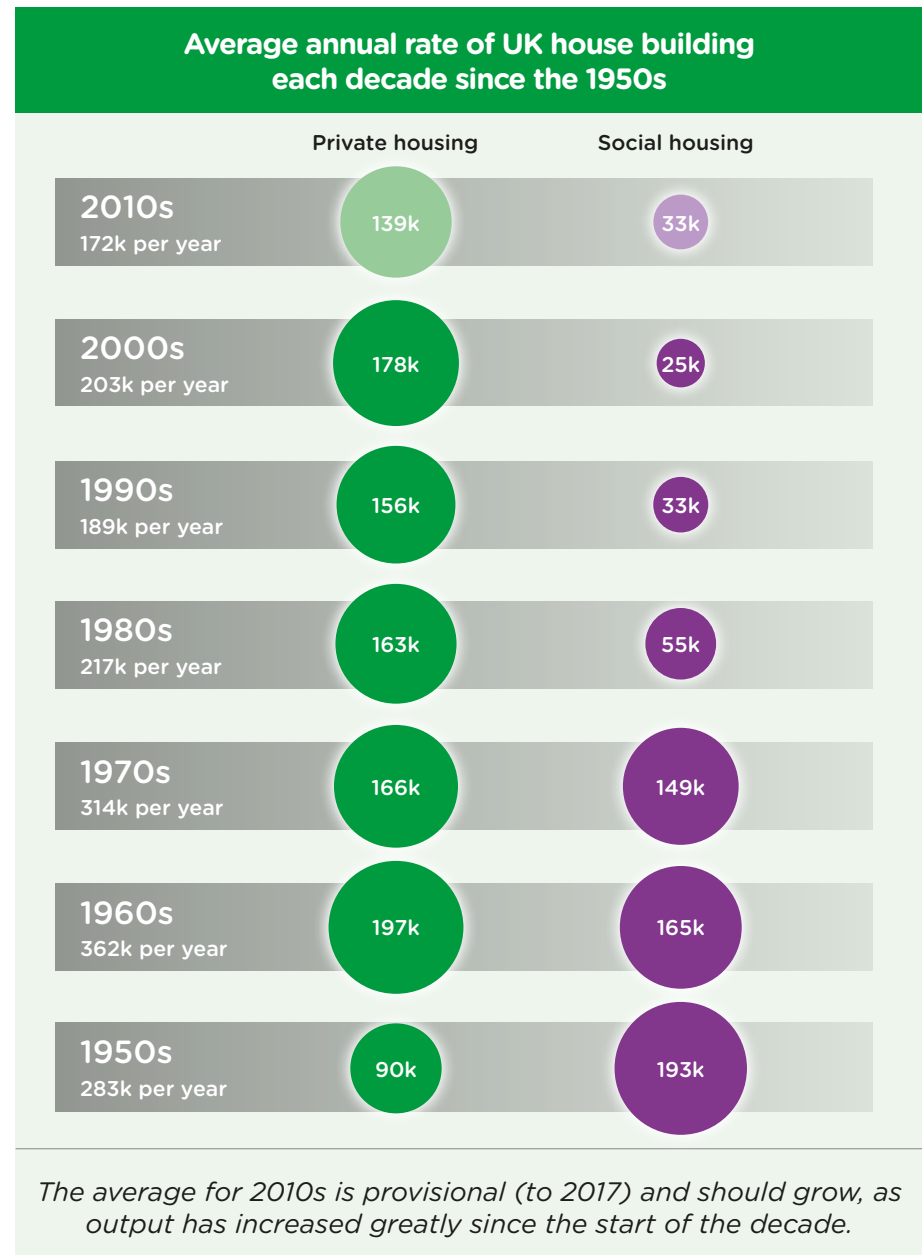
Housing and house building within the economy

26 How many new homes do we build in the UK?

- In the 12 months to March 2017, about 214,000 new homes were built across the UK, not including conversions and changes of use. It is estimated that 183,570 were built in England, 17,230 in Scotland, 6,830 in Wales and 6,470 in Northern Ireland (see Note 2, page 20).
- This total is below the post-war annual average of about 250,000, but above the average of about 200,000 from 1980 to the collapse in house building in 2007.
- The highest recorded number of homes built in the UK was 425,830 in 1968, which also saw the post-war peak for private sector UK completions at 226,070. The highest number of homes built annually for the private sector across the UK was 295,000 in the year to March 1935.
- The highest number completed by the social sector in the UK was 261,960, of which local authorities built 245,160, in 1953.

27 How much economic activity is generated in the UK by building new homes?

- Estimates by the Office for National Statistics of UK capital formation suggest that £38.4 billion was invested in creating new homes in 2017.
- Based on its share of construction, building new homes accounts for about 1.5% of total GDP, with private house building accounting for roughly 86% of that figure.
- A further £33.6 billion was invested in major repairs and home improvements in 2017.



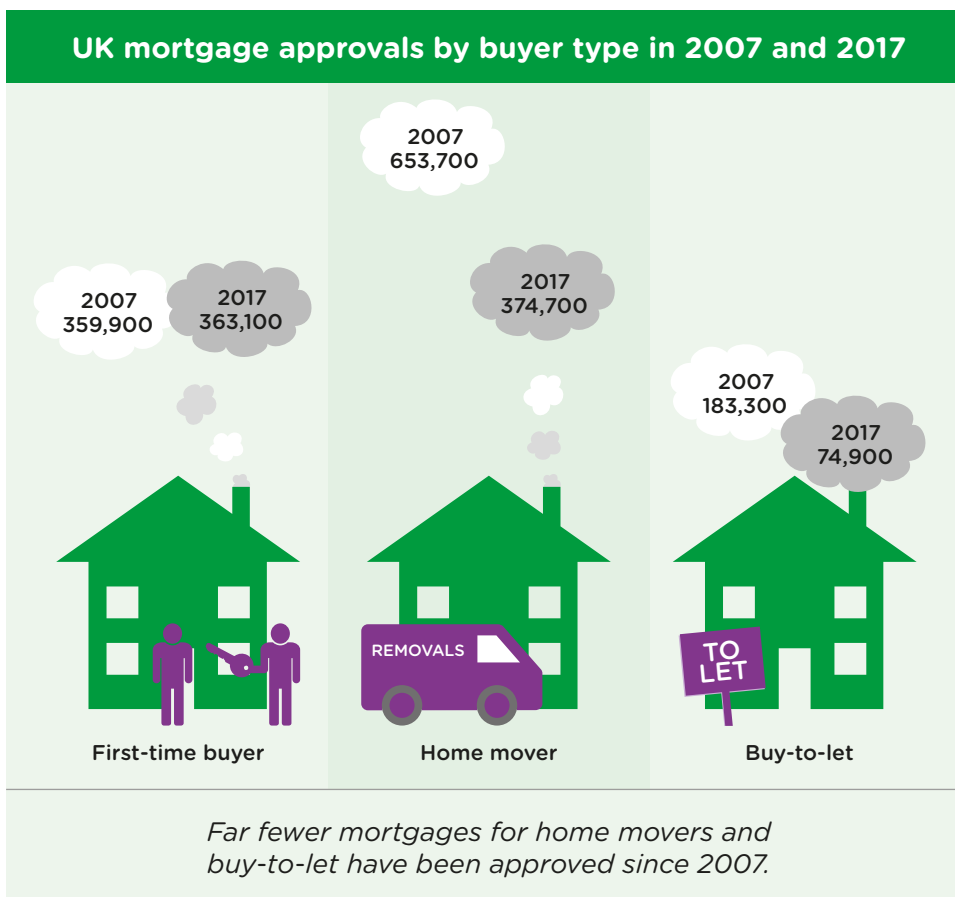
28 How many homes are sold each year in the UK?

- HM Revenue and Customs figures for UK residential transactions show that 1.21 million homes were sold in the year to March 2018 (about one in every 24). In England 1,026,400 homes were sold, 101,500 in Scotland, 55,800 in Wales and 27,000 in Northern Ireland.
- Sales are still well below pre-recession levels, when in the year to March 2007 there were 1.7 million homes sold across the UK.
- The estimated value of transactions in each year since 2014 exceeds £300 billion.



29 In the UK, how many mortgages are taken out to buy homes each year?

- There were 812,700 new mortgages for home purchase in 2017, amounting to a value of £149 billion, down from 1.2 million (value £178 billion) in 2007.
- Comparing 2017 with 2007, mortgages approved for first-time buyers have increased slightly but home-mover mortgages have declined by 43% and buy-to-let mortgages declined even more steeply (by 59%).



30 What does an average house cost relative to earnings?

- The average UK house price rose from £89,200 in 2000 to £221,600 in 2017. Over the same period the average annual full-time earnings rose from £22,800 to £35,400.
- The house-prices-to-earnings ratio varies greatly regionally. In the North East, North West and Northern Ireland in 2017 it was below 5. In the south eastern regions of England, it exceeded 8. It was highest for London at 9.5.
- Between 2007 and 2017 house prices grew faster than earnings in the South East, East England, South West and London, while growing slower than earnings elsewhere.
- The house-prices-to-earnings ratio is just one measure of affordability. Many factors influence the affordability of buying a home, such as the initial deposit, income, household characteristics, access to finance, interest rates, earnings growth, rents and house-price inflation. All fluctuate over what can be a long period of buying a home through a mortgage.

Changing relationship of house prices to earnings

2017



Average house price = £222,000



6.3 times average annual earnings

2000



Average house price = £89,000



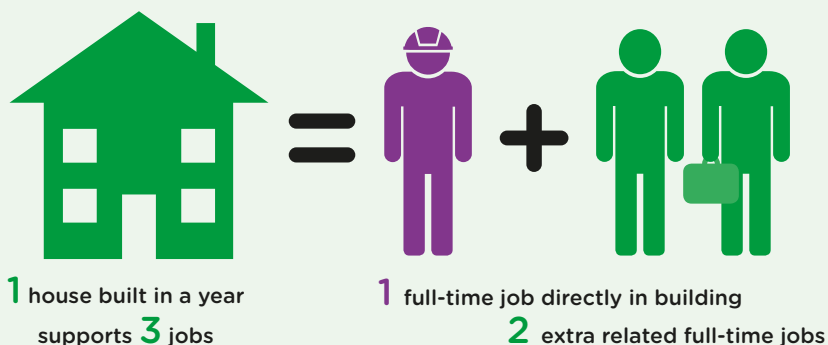
3.9 times average annual earnings

Securing a mortgage is an increasing challenge for first-time buyers, but current low interest rates make mortgages for existing home owners more affordable.

31 How many jobs does house building support? ▼

- In 2016 UK house-building firms directly employed 222,200 people; in addition, they employed significant numbers of subcontractors.
- It is estimated, by the Home Builders Federation, that every home built in England and Wales each year creates about one full-time job directly in house building and in total between 2.4 and 3.1 across the whole economy, when we account for those in the supply chain or other jobs indirectly generated. If we apply this figure across the UK at 2016-17 rates of build, it suggests up to 650,000 jobs across the total economy are supported by house building.

The jobs house building creates



House building supports roughly 1 in every 50 jobs in the economy.

32 What economic benefits would building more homes deliver?

- According to research for the Home Builders Federation, England and Wales should increase the annual supply of homes by 81,600. This would mean £411 million more net capital expenditure, a £14.2 billion rise in economic output, 260,800 more jobs, £1.1 billion more paid in tax, £384 million more investment in local infrastructure and £2.7 billion household spending on goods and services.

33 How concentrated is UK house-building production?

- The top 25 house builders during 2016 and 2017 built about half the UK's new homes.
- The top 10 firms delivered more than a third of new homes and the top three firms delivered almost a quarter.
- Company figures show that in 2001, the five house builders with the largest output completed 46,000 homes, while the top five in 2016 completed 60,000. This 30% increase for the top five contrasts with an increase of just 10% in completions for the UK over the period.

34 How are the numbers of smaller builders changing in the UK?

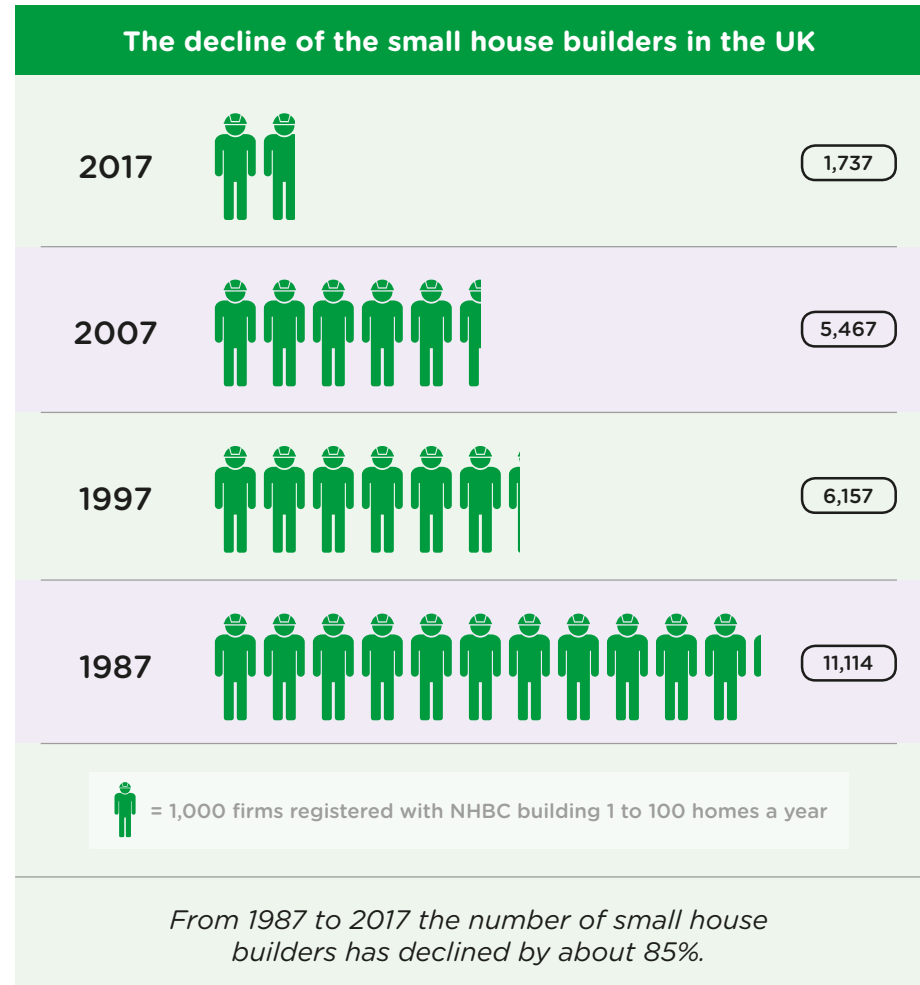
- In the past, smaller house builders have played a major part in recovery from recession. Following the 2008 financial crisis and subsequent recession, however, the numbers of small builders have continued to decline steeply.
- In 2009 small house builders (those building up to 100 homes a year) contributed a significant 29% of new home registrations. This had halved by 2013.
- Small house builders believe their business is hindered by features of the planning process, availability of suitable, viable land and by the lack of availability of finance.

35 How much UK land with planning permission is held by major house builders?

- On average the top 10 mainstream house builders in 2016 held land banks with planning permission equivalent to 5.4 years of production at their current rate. That amounted to about 400,000 homes.
- For larger mainstream house builders, between four and six years of land supply is regarded as normal to provide business certainty and to allow for the time it may take to clear specific planning matters, to deliver infrastructure, to build sites out and provide scope to increase production.

36 How many firms operate in UK house building?

- Data from the Office for National Statistics shows that UK firms mainly engaged in 'construction of domestic buildings' numbered 42,400 in 2017, having fallen to 28,100 in 2011. Many will not be house builders but will work across various aspects of the process of building homes.
- 39,900 of these firms employed fewer than 10 people, 2,300 employed between 10 and 100 people, while just 180 employed more than 100 people. 535 firms had a turnover of more than £10 million.



Housing and health

37 Is there a link between housing quality and health? ▼

- Research for housing charity Shelter found children living in poor housing were twice as likely to suffer worse health than those in good housing.
- Studies have strongly linked ill-health of adults and children to cold, damp, mould and other health hazards in homes.
- The National Centre for Social Research found a strong link between mental health disorders and poor housing.
- A review into the impact of overcrowding on health and education conducted by the Office of the Deputy Prime Minister in 2004 suggested poor housing also holds back education.

Proportion of people not in good or very good health

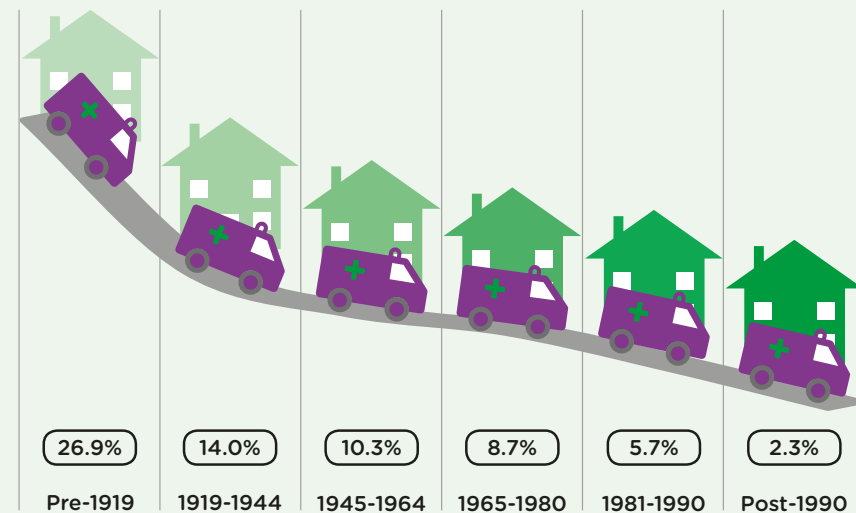


Poor housing is estimated to cost the NHS £2.5 billion per year.

38 Occupant health and safety: how do new and old homes compare? ▼

- Hazards categorised as 'Category 1' are estimated to be the source of 70% of the NHS costs related to poor housing.
- Category 1 hazards constitute a serious and immediate risk to a person's health and safety, including serious damp or mould, trip hazards and dangerous electrics. English Housing Survey data shows that these hazards are much more common in older homes, particularly in those built before 1919.

Category 1 health hazards by age of home



Newer homes have fewer hazards.

39 What proportion of homes are substandard?

- In England, the number of homes that failed to meet the Decent Homes Standard has fallen significantly from 7.7 million in 2006. However, according to the English Housing Survey, over 19.9% of homes (4.7 million) still failed to meet these minimum standards in 2016.
- About 98% of English homes that failed to meet the Decent Homes Standard were built before 1990 and 58% were built before 1945.
- To be decent, a dwelling should be, as a minimum, free of Category 1 hazards under the Housing Health and Safety Rating System, to be in reasonable repair and to provide modern facilities and services, and reasonable thermal comfort.

40 How many households don't have a permanent home?

- There were about 93,000 households living in temporary accommodation in Great Britain at the start of 2018. This is approximately one household in every 300 and equivalent to the number of households in Portsmouth or Warrington.
- Lack of a permanent home is associated with multiple deprivations, such as poorer health and education.
- According to the BBC in the five years to 2016, councils in Britain spent £3.5 billion on temporary accommodation for homeless families.

Principal data sources

- Bank of England
- Building Centre
- Building Research Establishment
- Council of Mortgage Lenders (CML)
- Department for Environment, Food & Rural Affairs (DEFRA)
- Digital Education Resource Archive (DERA)
- Eurostat
- HM Land Registry
- HM Revenue & Customs (HMRC)
- Home Builders Federation
- Housebuilder Media
- House of Commons Library
- Housing Market Intelligence
- Landscape Institute
- Ministry of Housing, Communities & Local Government (MHCLG)
- National Centre for Social Research
- NHBC
- NHBC Foundation
- Nomis
- Northern Ireland Department for Communities
- Office of National Statistics (ONS)
- Scottish Government
- UK Finance
- United Nations
- Welsh Government
- World Bank

For full details of the sources used for each of the forty sections of this guide, please see *Annex to NF81*. The Annex to NF81 (NF81A) is published separately and is available as a free PDF download from www.nhbcfoundation.org.

Notes

1 (20) Size of UK homes

Data for the UK is not included in the Eurostat database on average dwelling size. A calculated estimate for the UK was established, based on figures over three years from English and Scottish housing surveys.

2 (26) Numbers of homes built in the UK

Data for new-build completions was used from the English housing supply figures published since 2006-07, with the latest data available up to 2016-17. This was used to substitute for the English component. For the infographic, assumptions were made based on the net supply figures: a check was made both among experts and the Ministry of Housing, Communities & Local Government (MHCLG) to ensure that these assumptions were reasonable. See *Annex to NF81* (NF81A) for further information.

The NHBC Foundation

The NHBC Foundation, established in 2006, provides high-quality research and practical guidance to support the house-building industry as it addresses the challenges of delivering 21st-century new homes. To date, it has published more than 80 reports on a wide variety of topics, including the sustainability agenda, homeowner issues and risk management.

The NHBC Foundation is also involved in a programme of positive engagement with the government, academics and other key stakeholders, focusing on the current and pressing issues relevant to house building.

To find out more about the NHBC Foundation, please visit www.nhbcfoundation.org. If you have feedback or suggestions for new areas of research, please contact info@nhbcfoundation.org.

NHBC is the standard-setting body and leading warranty and insurance provider for new homes in the UK, providing risk management services to the house-building and wider construction industry. All profits are reinvested in research and work to improve the construction standard of new homes for the benefit of homeowners. NHBC is independent of the government and house builders. To find out more about the NHBC, please visit www.nhbc.co.uk.

The NHBC Foundation Expert Panel

The NHBC Foundation's research programme is guided by the following panel of senior representatives from the industry:

Rt. Hon. Nick Raynsford

Chairman of the NHBC Foundation and Expert Panel

Jane Briginshaw

Design and Sustainability Consultant, Jane Briginshaw and Associates

Andrew Burke

Development Director, The Housing Forum

Richard Cook

Head of Residential Development, Lend Lease

Claire Curtis-Thomas

Chief Executive, British Board of Agrément

Hywel Davies

Technical Director, Chartered Institution of Building Services Engineers (CIBSE)

Andrew Day

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Housing research & guidance