Suffolk County Council

Public Health & Communities

Housing and Health Needs Assessment

Unhealthy housing

Suffolk

2024

What does the H&HNA tell us about unhealthy housing in Suffolk?

Key section information:	Key section statistics:
Unhealthy housing conditions like cold, damp, mould, and poor air quality disproportionately impact vulnerable groups like children and older adults. To reach net zero emissions, Suffolk must significantly increase its rate of home retrofits with insulation, heat pumps and other initiatives. Support is required to fund retrofits for low-income households who would benefit most from warmer, efficient housing. Key issues needing addressed are reducing fuel poverty, improving insulation to combat cold and damp, continued air quality management, and supporting low-income households with retrofits. Delivering retrofits is critical to meeting national climate change commitments. A holistic approach is required to engage government, the housing sector, and the public to transition Suffolk's housing stock to be warm, dry, efficient homes.	• Fuel poverty affects 14.1% of Suffolk households, exacerbating health issues and winter deaths. • Around 12,675 Suffolk households have damp/mould problems, which can cause health problems including allergens and disease.

Unhealthy housing

Countries with homes that are energy efficient and properly insulated tend to have fewer excess winter deaths. There is a link between excess winter deaths, poor household energy efficiency and cold household temperatures.

Children living in cold homes are more than twice as likely to suffer from a variety of respiratory conditions than children living in warm homes[142].

There is a significant amount of evidence on the direct and indirect health impacts suffered by those living in fuel poverty and cold housing, but several benefits can be realised by improving the thermal efficiency of the existing housing stock.

Cold

Cold homes are not conducive to good health for anyone. However, for vulnerable individuals the impact is heightened. Living in a cold home increases their chance of serious illness and death. Individuals in cold homes are more at risk of heart attack or stroke, breathing problems, flu, depression, and falls[143]. Cold-related illness can also cause absence from work, social isolation, and sleep deprivation[144].

England has high winter cold-related illness compared to Europe. Home energy efficiency upgrades such as insulation may improve health and reduce emissions,

but current policies have had limited impact to date. More extensive housing retrofits are needed to realize full health and climate benefits[145].

The UK has high numbers of households living in cold homes and fuel poverty. The government's fuel poverty measure likely underestimates the extent, with surveys suggesting up to 46% of UK households are not putting on heating in cold spells[146].

- Cold homes negatively impact physical and mental health for both adults and children. Evidence has strengthened on links to worsening mental health.
- On fuel prices, housing costs, and incomes, the UK compares poorly to other European countries. Stagnant wage growth means poverty measures based on median income disguise the numbers struggling.
- Up to 9.6 million UK households (34%) are estimated to be at risk of living in a cold home, in energy inefficient housing, and unable to afford insulation[146].

The February 2024 Institute for Health Equity report 'Left Out in the Cold' states priority groups for action include those with health conditions, in arrears on housing, on Universal Credit, and minoritised ethnic groups. Regional data could help target areas in most need. Furthermore, cold homes cost billions per year in NHS costs, lost productivity, higher bills, and carbon emissions. Insulating homes could save over £17.9 billion annually. The report also states that action is needed on incomes, fuel costs, and housing costs. Better targeting of measures like winter fuel payments could help the neediest[146].

The English Housing Survey (EHS) assesses whether homes have any category 1 hazards using the Housing Health and Safety Rating System (HHSRS – more information is available in this section). A category 1 hazard poses a serious risk to health and safety. Excess cold can amount to a category 1 hazard.

Within the EHS, excess cold is modelled based on the energy efficiency of the property – this assesses whether excess cold is likely to occur, rather than an actual measure of temperature experienced by residents.

In 2019 in England, it was estimated that 2.8% of households lived in a home with an excess cold hazard[45]. Applied to Suffolk's housing stock, this equates to 9,340 households.

The national prevalence of cold differs based on certain characteristics relevant to Suffolk:

- households with older residents were more likely to experience excessive cold hazards. Specifically, 4.2% of homes where the oldest occupant was 60 or older experienced excess cold, compared to just 1.8% of households where the oldest resident was under 60 years of age.
- excess cold hazards occur more frequently in rural homes compared to urban areas. In 2019, 9.0% of rural households in England experienced excess cold conditions, significantly higher than the 2.6% rate in city and urban centres, and 1.4% in suburban residential areas.
- only 1% of social rented homes were likely to have an excess cold hazard, compared to 3% of owner-occupied, and 4% of private rented households.

- excess cold is more prevalent in older homes. In 2019, 7.9% of properties built before 1919 suffered from excess cold conditions. For houses constructed between 1981-1990, only 1.0% faced excess cold hazards[45].

Fuel poverty

In England in 2023, the overall level of fuel poverty was 13.0% using the Low-Income Low Energy Efficiency (LILEE) fuel poverty metric[147]. The LILEE metric considers a household to be fuel poor if:

- it is living with an energy efficiency rating of D, E, F or G and;
- its disposable income (income after housing costs and energy needs) would be below the poverty line

Fuel poverty is measured based on required energy bills rather than actual spend. This ensures those that have low energy bills because they actively limit their use of energy (such as by not heating their home) are not overlooked. The most recent sub-regional fuel poverty data for Suffolk is for 2021. For Suffolk in 2021, there was a higher proportion of households estimated to be in fuel poverty than the England average, at 14.1%, or 47,452 households. The estimated number of households in fuel poverty varies significantly across the Suffolk districts and boroughs, ranging from 12.1% in West Suffolk, to 15.3 % in East Suffolk[148].

Table 5. Fuel poor households in England, Suffolk and districts and boroughs, 2021

Area	Number of households in fuel poverty	Proportion of households fuel poor (%)
England	**3,162,752**	**13.1%**
Suffolk	**47,452**	**14.1%**
Babergh	5,831	14.3%
East Suffolk	17,092	15.3%
Ipswich	9,001	15.0%
Mid Suffolk	5,876	13.1%
West Suffolk	9,652	12.1%

Source: Fingertips – Fuel poverty (low income, low energy efficiency methodology), 2021.

Three components determine whether a household is fuel poor:

- household income
- household energy requirements (energy efficiency is a key driver of fuel poverty, as higher energy efficiency reduces a household's fuel costs for a particular size of property)
- fuel prices – the energy price cap which prevent suppliers from setting default tariffs higher than a set amount, is determined by wholesale energy prices[149]

Households in fuel poverty pay a large proportion of their income just for energy, leading to cutbacks on other essentials and self-rationing their own heating. This can

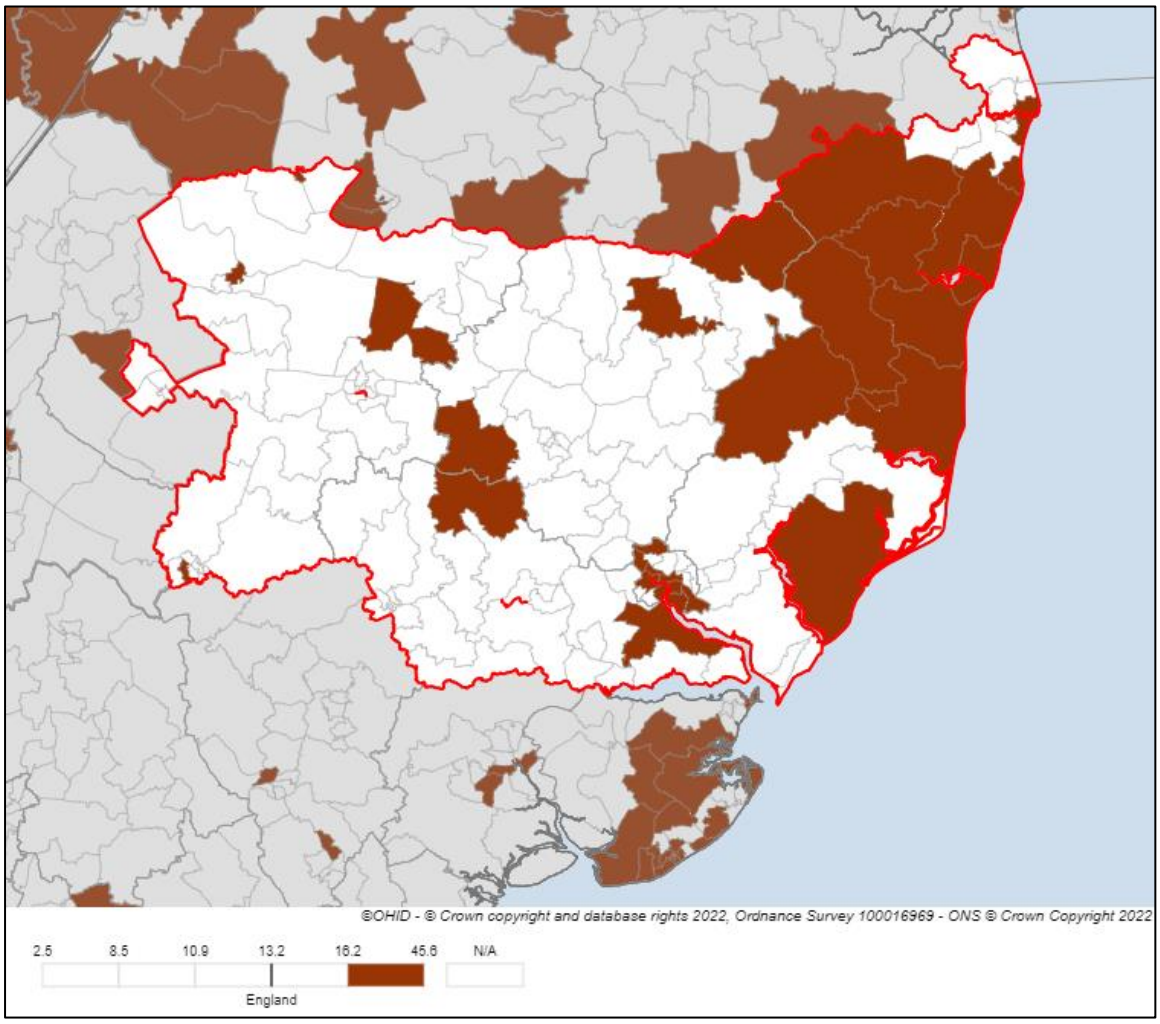
worsen various physical and mental health conditions, such as respiratory and circulatory conditions.

The average fuel poverty gap for England in 2023 (the reduction in fuel costs needed for a household to not be in fuel poverty) was estimated at £417, up by 20% from 2022 (£348)[147].

While improvements have been made in energy efficiency, there has been no improvement in the percentage of households meeting the 2030 fuel poverty target in 2022. Over half (52.8%) of all low-income households were living in a property with a fuel poverty efficiency rating (FPEER) of band C or better. This was due to rising energy prices in 2022[41].

There are 138 geographical ward areas in Suffolk. Of those 138 wards, 29 are in the top 20% nationally for the percentage of households experiencing fuel poverty. To be in the top 20% of ward areas nationally for fuel poverty – over 16.2% of households in a ward area must be classified as fuel poor. Fuel poverty in Suffolk in 2020 was highest in East Suffolk and Ipswich. Almost 1 in 4 households (23.9%) in Gainsborough were classified as fuel poor in 2020, the highest proportion in the county.

Figure 26. Suffolk wards with the highest proportion of households experiencing fuel poverty (in the top 20% nationally), 2020



Source: Fingertips Local Health Tool

Experimental analysis by the Office for National Statistics also explores the number of people with cardiovascular or respiratory conditions living in poverty in private households in England.

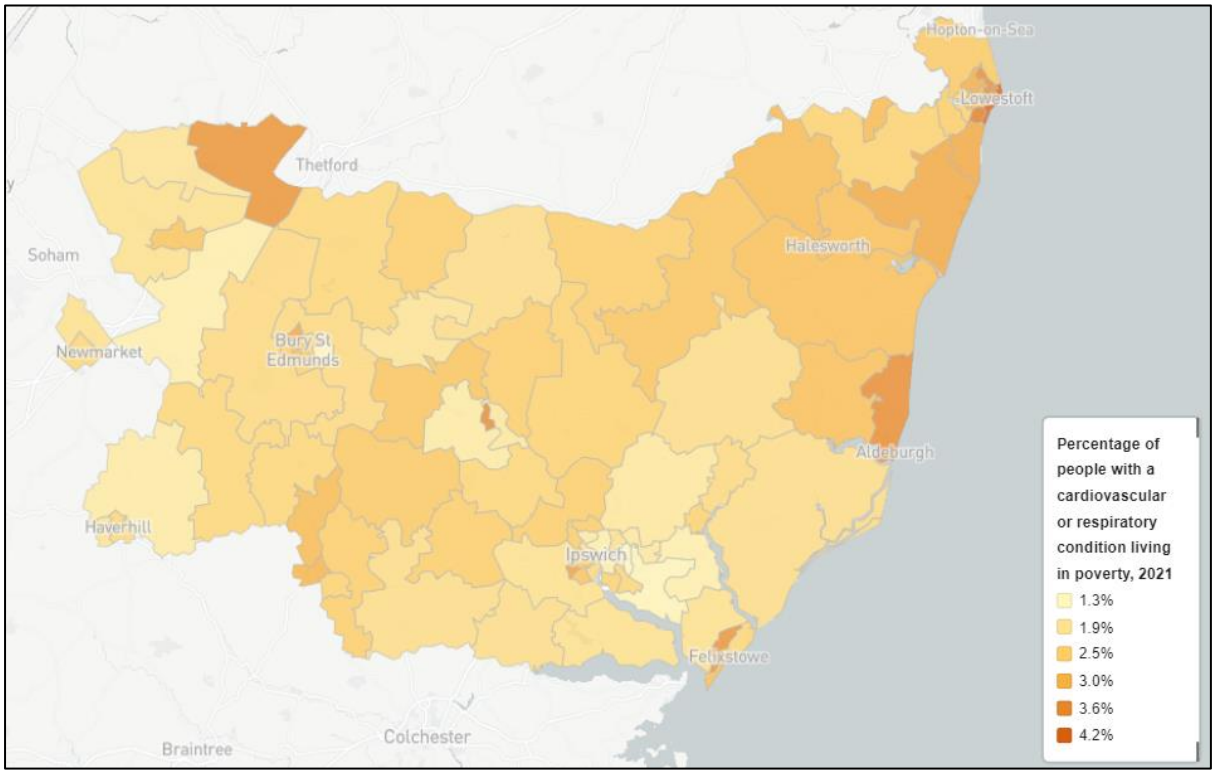
In England on the 21st of March 2021, 6.6 million people (12.1% of the population) had either a cardiovascular or respiratory condition.

Of the 10.8 million (20.1%) living in private households estimated to be living in poverty, 1.3 million people had a cardiovascular or respiratory condition. This represents 2.5% of the entire population living in private households.

The figure below shows the estimated number of people with a cardiovascular or respiratory condition living in poverty in private households at middle super output area (MSOA), within Suffolk. These MSOA areas where highest:

- Lowestoft (Lowestoft Harbour & Kirkley: 4.2%, Lowestoft Central: 3.5%, Gunton West: 3.6%, Oulton: 3.1%, Pakefield North: 3.8%, Pakefield South & Kessingland: 3.2%, Southwold, Reydon & Wrentham: 3.2%)
- Leiston & Aldeburgh: 3.6%
- Felixstowe West: 3.5%
- Belstead Hills: 3.3%
- Stowmarket West: 3.6%
- Howard Estate & Northgate: 3.2%
- Brandon: 3.5%

Figure 27. Suffolk middle super output areas (MSOA) percentage of people with a cardiovascular or respiratory condition also living in poverty as of 21st of March 2021



Source: ONS – Estimating the number of people with cardiovascular or respiratory conditions living in poverty, England: 2021

Excess winter deaths

The winter mortality index is a measure expressed as a ratio of the difference in all cause mortality during winter months (December to March) compared to the average in the non-winter months (the preceding August to November and following April to July).

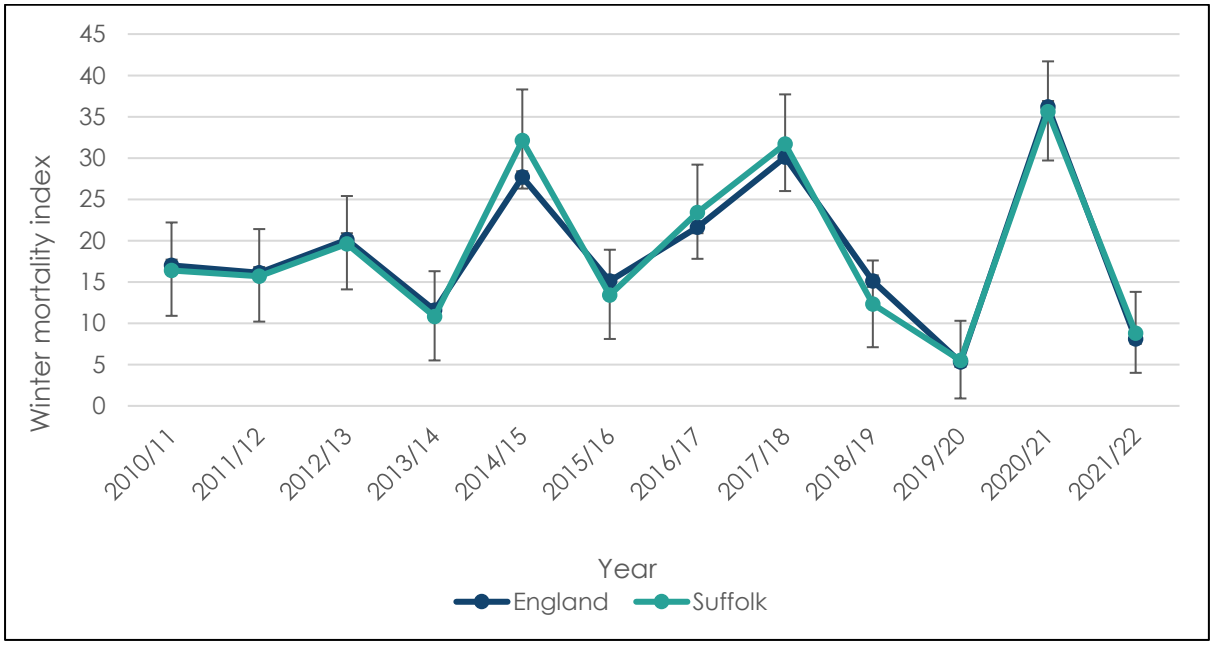
There were around 4,990 excess winter deaths in Suffolk in the ten-year period between 2010/11 to 2020/21 (including COVID-19)[150].

Fuel poverty is estimated to be attributed to 10% of excess winter deaths, and cold housing is responsible for 20% of excess winter deaths in England[151,152]. Applying this rationale, 500 excess winter deaths in Suffolk since 2010/11 were attributable to fuel poverty, and 1,000 excess winter death to cold housing.

The below figure shows the winter mortality index for Suffolk and England between 2010/11 to 2021/22. Each year, Suffolk has had a statistically similar winter mortality index value to the England average.

The highest winter mortality index value for Suffolk was in 2020/21, where the winter deaths ratio was 35.6, accounting for 870 excess winter deaths[153].

Figure 28. Winter deaths compared to non-winter deaths in Suffolk, between 2010/11 to 2021/22



Source: OHID Fingertips - Winter Mortality Index

Damp and mould

One of the most common causes of damp and mould in homes is condensation. This can be caused from moisture from showering, drying clothes and cooking building up in the air around a home. Warm air holds more water vapour than cold air,

forming condensation when it encounters a colder surface such as a wall or window[154]. Over time, condensation leads to damp and mould growth. This is more likely to occur in the winter, when indoor and outdoor differences in temperature are greater.

Damp and mould may be more likely to occur because of:

- inadequate heating (poor energy efficiency or fuel poverty)
- poor insulation leading to heat loss and condensation
- poor ventilation meaning moisture-laden air cannot escape and not replaced with fresh external air

Within the English Housing Survey data, a house with damp has either:

- rising damp, where water slowly moves up the lower sections of walls and other ground-supported structures.
- penetrating damp, where water penetrates a building through walls, roofs or windows and appears inside.
- serious condensation or mould[155]

Thousands of people including babies and toddlers are hospitalised each year in England with lung conditions linked to damp and mould in households[156].

Damp and mould are caused by excess moisture. Moisture in buildings can be caused by leaking pipes, rising damp in basements or grounds floors, or rain seeping in because of damage to the roof or window frames. Everyone is vulnerable to the health impacts of damp and mould (e.g. it can be toxic and cause irritation and allergies), but people with certain health conditions, children and older adults are at greater risk of more severe health impacts. For children, visible mould and mould odour were associated with the development and exacerbations of asthma[157].

A major problem with damp is that it encourages the growth of dust mites, bacteria, moulds, and viruses which can cause allergic reactions and disease. One study also found that the risk of babies developing asthma rose in line with household mould levels[158]. Children growing up in homes with mould present are also between 1.5 and 3 times more prone to coughing and wheezing[159,160].

Damp and mould in housing has recently received greater public exposure, after the case of two-year-old Awaab Ishak's death occurring after 'chronic exposure' to mould in a family's flat in Rochdale in 2020[161]. As a result, government consultation is ongoing on Awaab's Law in early 2024, where rogue social landlords would have strict time limits enforced to investigate hazards within 14 days, start fixing them within a further 7 days, and make emergency repairs within 24 hours[162].

It is estimated that up to 6.5million households in England are living in a home with damp and mould, which may put their health at risk.

In September 2023, new guidance was been published by the Office for Health Improvement and Disparities (OHID), Department for Levelling Up, Housing and Communities (DLUHC), and the UK Health Security Agency (UKHSA): Understanding and addressing the health risks of damp and mould in the home. This new guidance

is primarily aimed at all social and private rented housing landlords of all types of accommodation in England. The guidance sets out the following:

1. **health risks** - damp and mould can significantly impact the physical health of tenants. The airways and lungs are primarily affected and can cause serious illness. Children, older adults, and those with certain health conditions are at greater risk of more severe health impacts from damp and mould[163].

Tenants' mental health can also be affected – for example worrying about the health impacts of damp and mould, unpleasant living conditions, and destruction of property and belongings[163].

2. **regulation on damp and mould in social and private rented properties** - private and social landlords are required to adhere to regulations relating to damp and mould. Not complying with the regulations could lead to prosecution or financial penalties.

3. **responding to reports of damp and mould** - the guidelines also provide detail on how to respond to reports of damp and mould, such as responding urgently, tackling the underlying issue, keeping tenants informed, and undertaking timely inspection following remedial work.

4. **taking a proactive approach to reduce the risk of damp and mould** – landlords should have clear processes in place to document, manage and act on reports of damp and mould, and understand the condition of their housing stock. They should also understand some tenants may struggle to heat their homes, making damp and mould more likely to occur[163].

Damp is easier and cheaper to deal with the sooner it is acted on. Households with persistent leaks and water damage are likely to require professional repairs with materials removed and replaced.

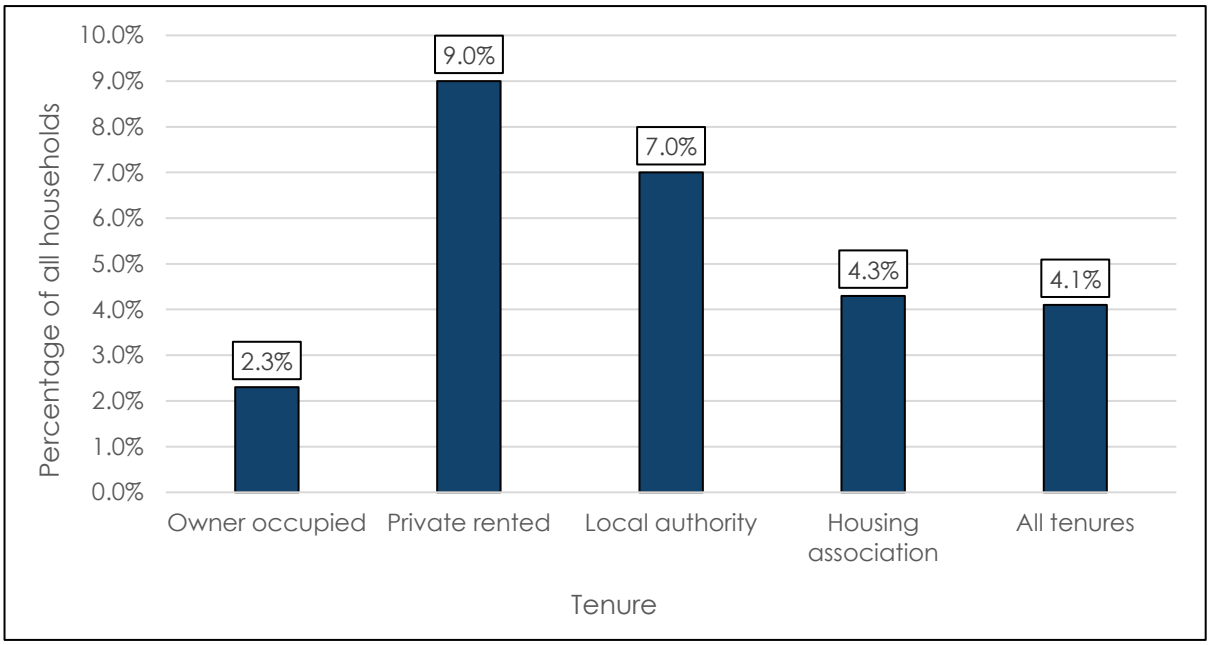
Condensation is more challenging in the winter when windows and external walls are colder surfaces for water to form on. One method to counter this is reducing the amount of moisture in the air and ensuring ventilation in the home.

According to the English Housing Survey for 2022/23, 4.1% of households in England have any form of damp. The official statistics on damp only include severe cases judged to fail a surveyor's home health safety evaluation. Many more properties suffer from issues but remain undetected. Additionally, the impacts disproportionately burden certain demographics rather than affecting all groups evenly.

Damp and mould prevalence varies significantly by housing tenure. In the private rented sector, 10.7% of properties experience damp, far higher than the 1.7% damp rate for owner-occupied homes. Overall, private rentals are disproportionately affected by damp compared to other tenure types[164]. Tenants living in private rented properties are known to under-report problems because of fear of no-fault evictions.

Furthermore, Mixed White and Black Caribbean (13%), Bangladeshi (10%), Black African (9%) and Pakistani (8%) households were more likely to have damp than White British households (3%)[155].

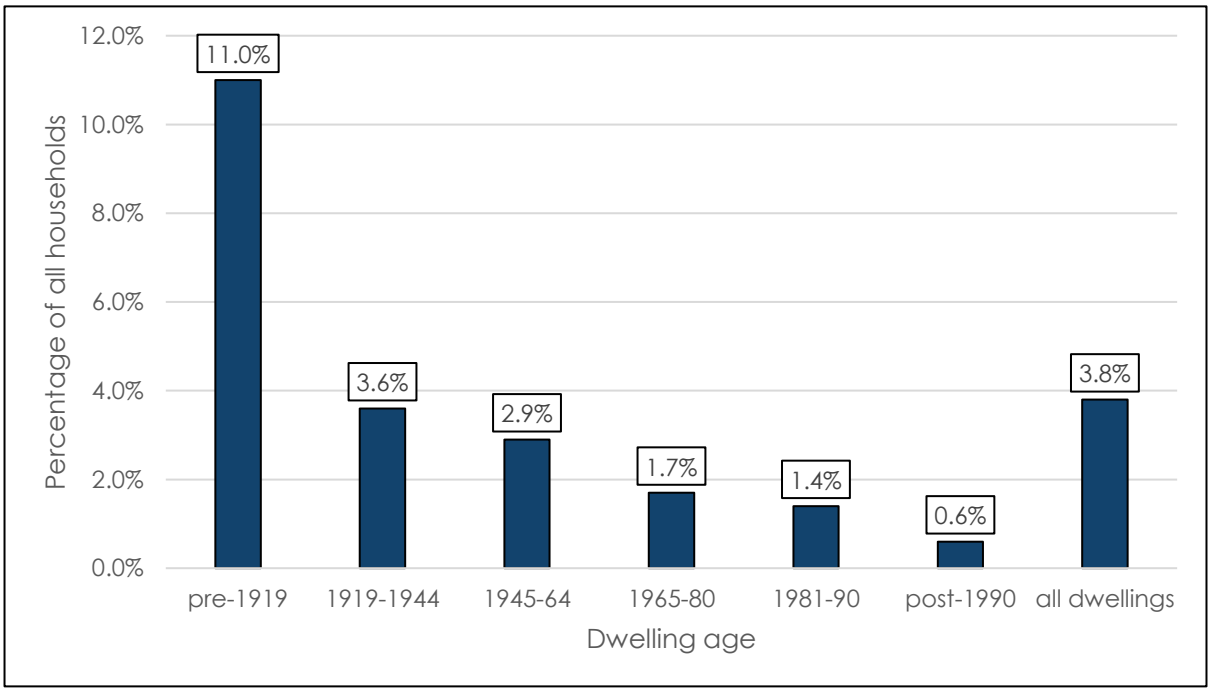
Figure 29. Percentage of dwellings with any damp in England, by tenure, 2022



Source: English Housing Survey 2022/23 Chapter 4: Dwelling Condition

Nationally, it is estimated that 11.0% of households constructed pre-1919 have any form of damp. Suffolk has a large proportion of older households, with 11% constructed pre-1914. Using the national prevalence of any damp in households (3.8%), we can predict that 12,675 households in Suffolk suffer with any form of damp.

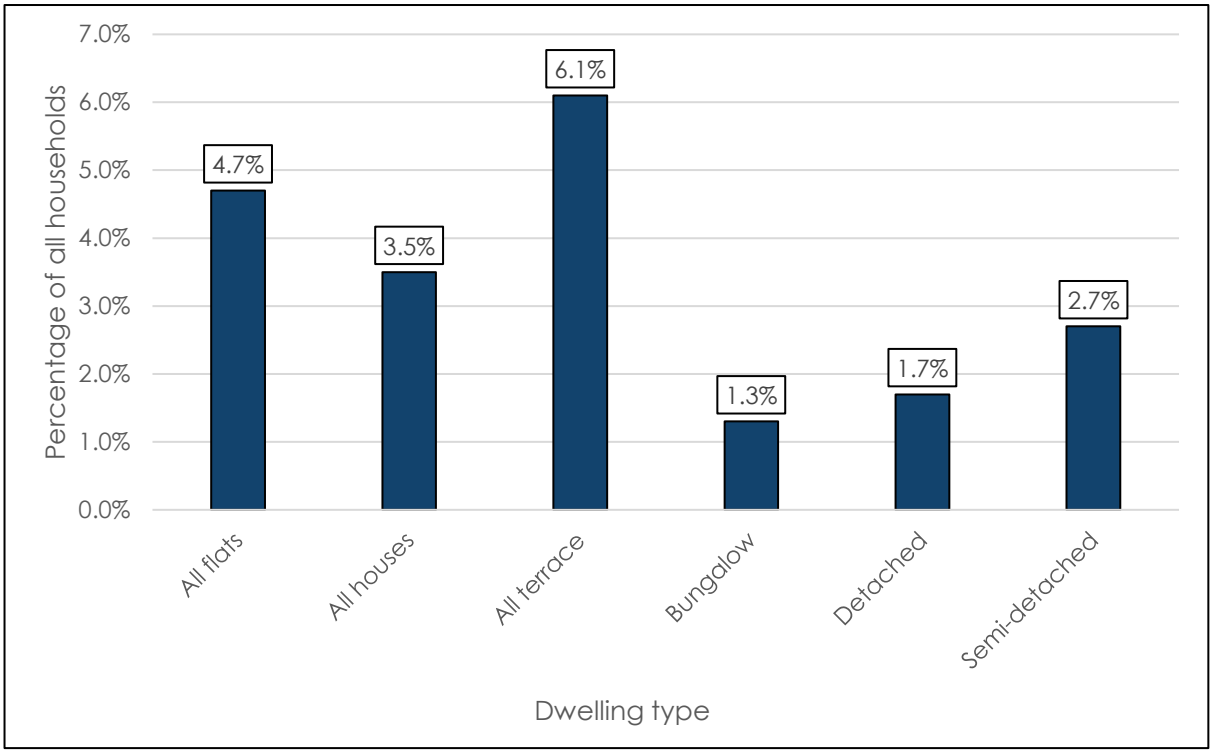
Figure 30. Percentage of dwellings with any damp in England, by dwelling age, 2021



Source: English Housing Survey data on dwelling condition and safety

All terraced houses in England, also have the highest prevalence of any form of damp in 2021 at 6.1%. Bungalows (1.3%), and detached houses (1.7%) in England had the lowest prevalence of any type of damp. Flats also were estimated to have a higher prevalence of any type of damp (4.7%) compared to all houses (3.5%) in England.

Figure 31. Percentage of dwellings with any damp in England, by dwelling type, 2021



Source: English Housing Survey data on dwelling condition and safety

Condensation in homes can be addressed through easy, affordable solutions. Interventions include: producing less indoor moisture by keeping lids on pots and pans during cooking, hang-drying laundry outside (if possible) rather than inside and ventilating clothes dryers to the exterior, and regularly airing out the home[165].

These simple habits allow damp air to escape rather than settle on surfaces leading to damp and mould growth. Additionally, keeping homes adequately insulated and heated combats condensation by reducing cold surfaces where moisture can collect and cause mould growth[31]. In cases of persistent condensation, dehumidifiers effectively remove moisture from the indoor air. With small daily precautions and proper insulation, homes can remain dry and free of troublesome condensation, preventing damp and mould growth[166].

Excess heat

The UK is getting hotter, and temperatures of 40°C and over could become a reality. A heat-period is defined as day(s) when the mean Central England Temperature is greater than 20°C. Between June and August 2022, there were five heat-periods meeting this criterion[167]. 'Excess heat' is included as a hazard in the Housing Health and Safety Rating System (HHSRS)[79].

Everyone's health can be at risk during periods of hot weather, but some people are particularly vulnerable to heat. A hot home can worsen existing health conditions and can be fatal.

Homes that are more likely to overheat during warmer weather include:

- flats on the top floor because heat rises
- homes with opening windows on just one side of the property, as this means there is less ventilation through the home
- homes with little shading from the sun either externally, for example no shutters or shades, or internally, for example no curtains or blinds
- large east, west or south-facing windows which do not have shade from the sun (for example external shutters or internal curtain and blinds)
- homes located in a densely built-up urban area with little green space nearby as these areas may experience even hotter temperatures
- some highly insulated or energy-efficient homes may trap heat inside. Making homes energy efficient has lots of health and other benefits but care needs to be taken to avoid overheating in the summer
- homes with low efficiency appliances that release excess heat, such as poorly insulated hot water systems[168]

Some residents may be at higher risk of becoming unwell in hot weather, including:

- older adults, especially aged 65 years and over
- children, especially aged 5 and under 5 years old
- people who live alone and/or are socially isolated
- people with long-term health conditions (particularly heart and breathing problems)
- people taking certain medications
- people who need the assistance of others for their routine activities
- people with difficulty adapting their behaviour in warmer weather (for example, due to dementia, mental health issues or alcohol/recreational drug use)
- people who are at home during the hottest part of the day (for example, small children or home workers)[168]

During the five heat-periods between June and August 2022, there were 3,271 deaths in England alone due to excess heat. Following a heat-period peak, a fall in the number of deaths follows to below the average for the following days. This suggests a short-term mortality displacement – where deaths among vulnerable individuals are 'brought-forward' to within the heat-periods[167].

Analysis by the UK Health Security Agency also found high levels of estimated excess mortality, excluding COVID-19 deaths, in those aged 65 and over during the summer heatwaves. Their model estimated 2,803 excess deaths in this vulnerable age group across the five 2022 heatwave periods - the highest number since heat health alerts were introduced in 2004[167].

The UK Health Security Agency published guidance in May 2023 titled Beat the heat: keep cool at home checklist. The guidance includes recommendations on how to

prepare households for hot weather, and health advice during hot weather, including Beat the heat, NHS advice on heat exhaustion and heat stroke, and NHS advice on sunscreen and sun safety.

Wider determinants – flooding

The immediate dangers to physical health from flooding are visible, whereas most impacts of flooding on health in England are associated with mental health.

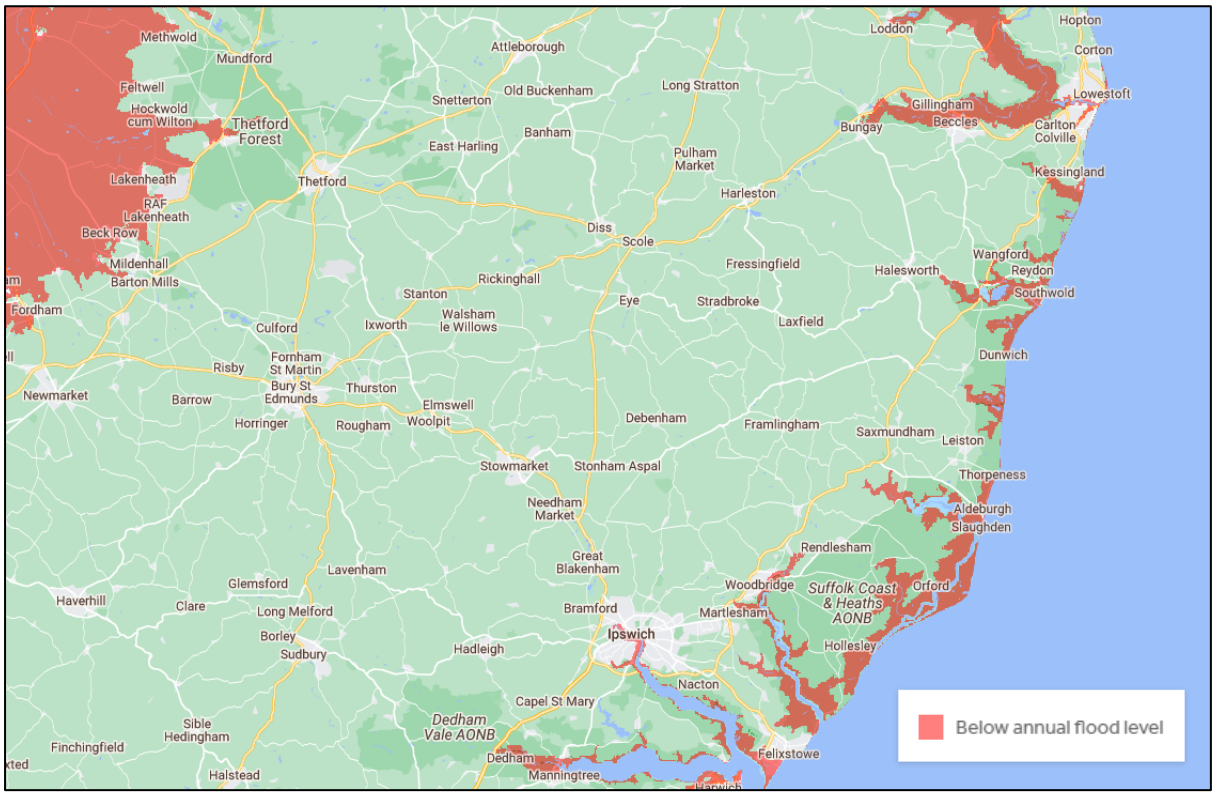
The UK Climate Change Risk Assessment (CCRA) in 2022 identified flooding as one of the most important climate change adaptation challenges facing the UK. The mental health impacts of flooding are well known, affecting wellbeing through stress and anxiety[169]. The UK Health Security Agency Resource Flooding and health: assessment and management of public mental health provides evidence-informed support to vulnerable and affected populations.

The guidance presents good practice suggestions, with the main messages summarised in the following points:

1. to prepare vulnerable communities in advance of flooding, local authorities play a key role in helping build community resilience. This can be achieved through identifying households with higher vulnerability to the impacts of flooding to offer targeted interventions and communications.
2. public agencies and local authorities should review the guidance to satisfy themselves that their response activities reach those that need to take appropriate actions both in preparation and response to flooding.
3. local authority commissioners together with Local Resilience Forums should seek assurance that organisations and key stakeholders are taking appropriate actions for flood alerts or warnings.

Climate Central's sea level rise and coastal flood maps are based on peer-reviewed science in leading journals. The below figure presents land projected to be below annual flood level in 2050. As Suffolk is a costal county, most areas affected and predicted to be below the annual flood level are along the River Waveney and surrounding areas of Southwold, Walberswick, surrounding areas of the River Alde, River Deben and River Orwell, impacting Felixstowe. One caveat is that this data source only considers sea levels and does not consider rainfall which is harder to predict.

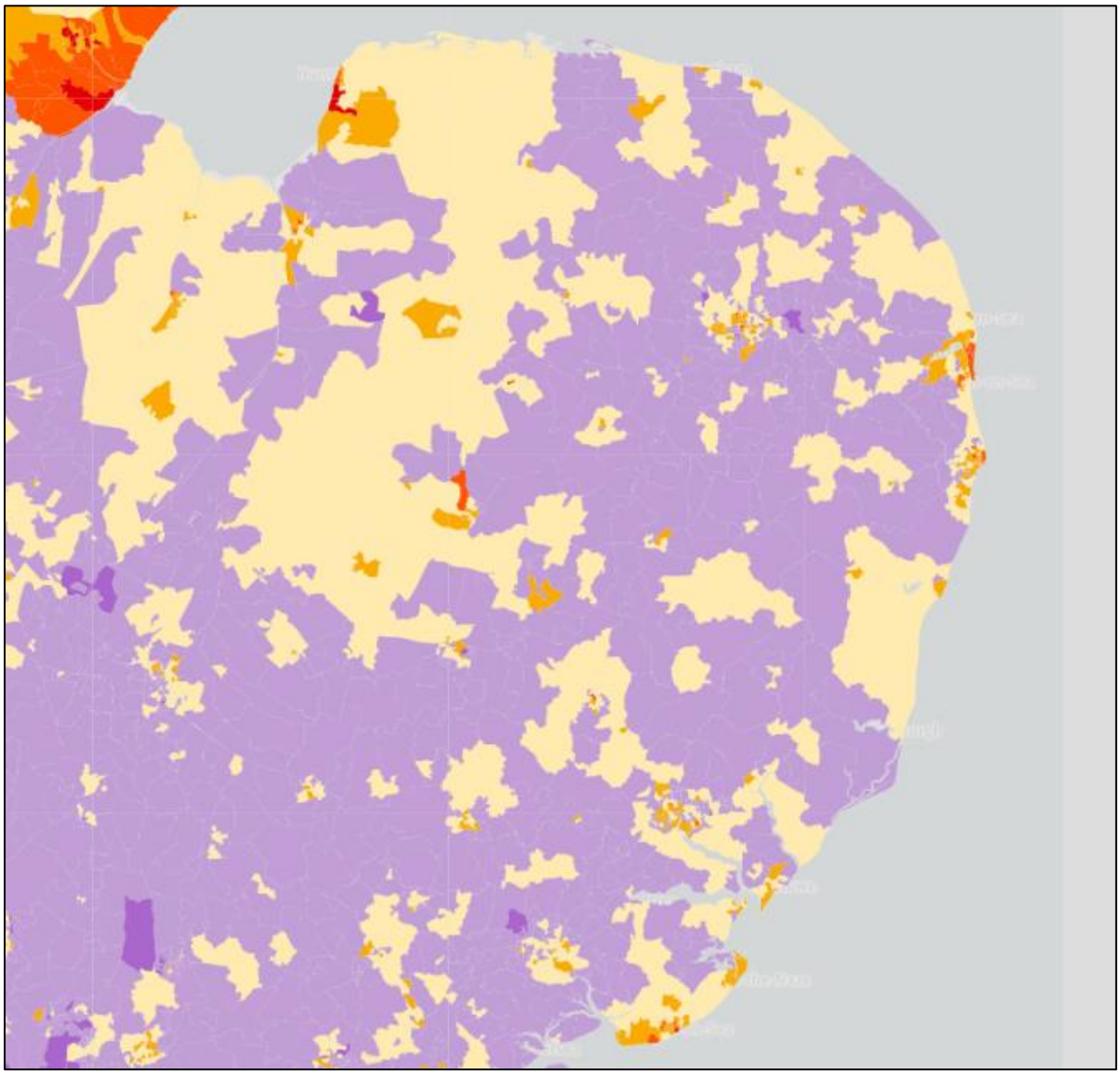
Figure 32. Land projected to be below annual flood level in 2050, Suffolk



Source: [Climate Central Coastal Risk Screening Tool]

The Neighbourhood Flood Vulnerability Index also highlights the areas of increased concern for flood risk. This map shows the vulnerability to climate change at neighbourhood level to support local planning and responses to a changing climate. More information on the Neighbourhood Flood Vulnerability Index (NFVI) methodology is available on present and future flood vulnerability risk and disadvantage 2017. In Suffolk, the areas with the highest vulnerability to flooding include Ipswich and Lowestoft.

Figure 33. Neighbourhood Flood Vulnerability Index (NFVI) for East of England, 2017



Source: Climate Just – Neighbourhood Flood Vulnerability Index

Wider determinants – air quality

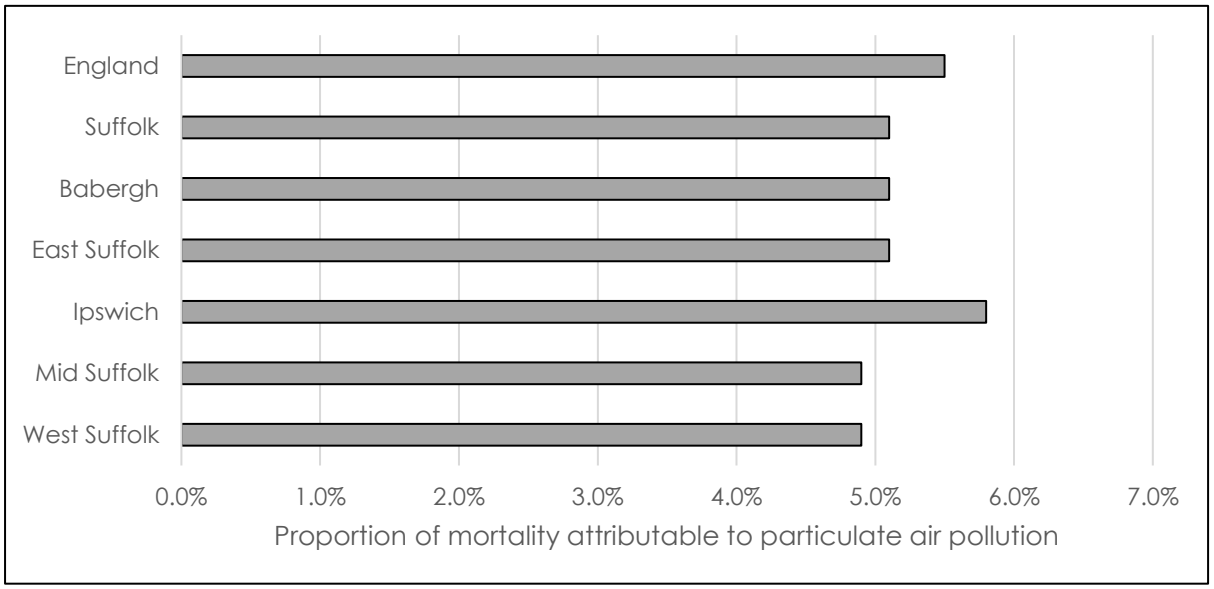
Poor air quality is a significant public health issue. There is strong evidence that air pollution causes the development of coronary heart disease, stroke, respiratory disease, and lung cancer, exacerbates asthma, and has a contributory role in mortality[170].

Although air pollution can be harmful to everyone, it particularly affects people living in polluted areas, those who are exposed to higher levels of air pollution in their day to day lives, and those who are more susceptible to health problems caused by air pollution, widening health inequalities[171].

The below figure presents the fraction of annual all cause adult mortality attributable to particulate air pollution. The indicator is the fraction of annual all cause adult (aged 30 and over) mortality attributable to particulate air pollution (measured as fine particulate matter, $PM_{2.5}$). $PM_{2.5}$ means the mass in micrograms per cubic metre

of air of individual particles with an aerodynamic diameter generally less than 2.5 micrometres – also known as fine particulate matter[172]. The calculation is modelled on a 1 x 1 km grid using an air dispersion model; hence numerators and denominators are not used, and confidence intervals are not reported. The below figure therefore does not include statistical significance.

Figure 34. Fraction of mortality attributable to particulate air pollution in Suffolk and districts and boroughs, 2021



Source: Fingertips – public health profiles

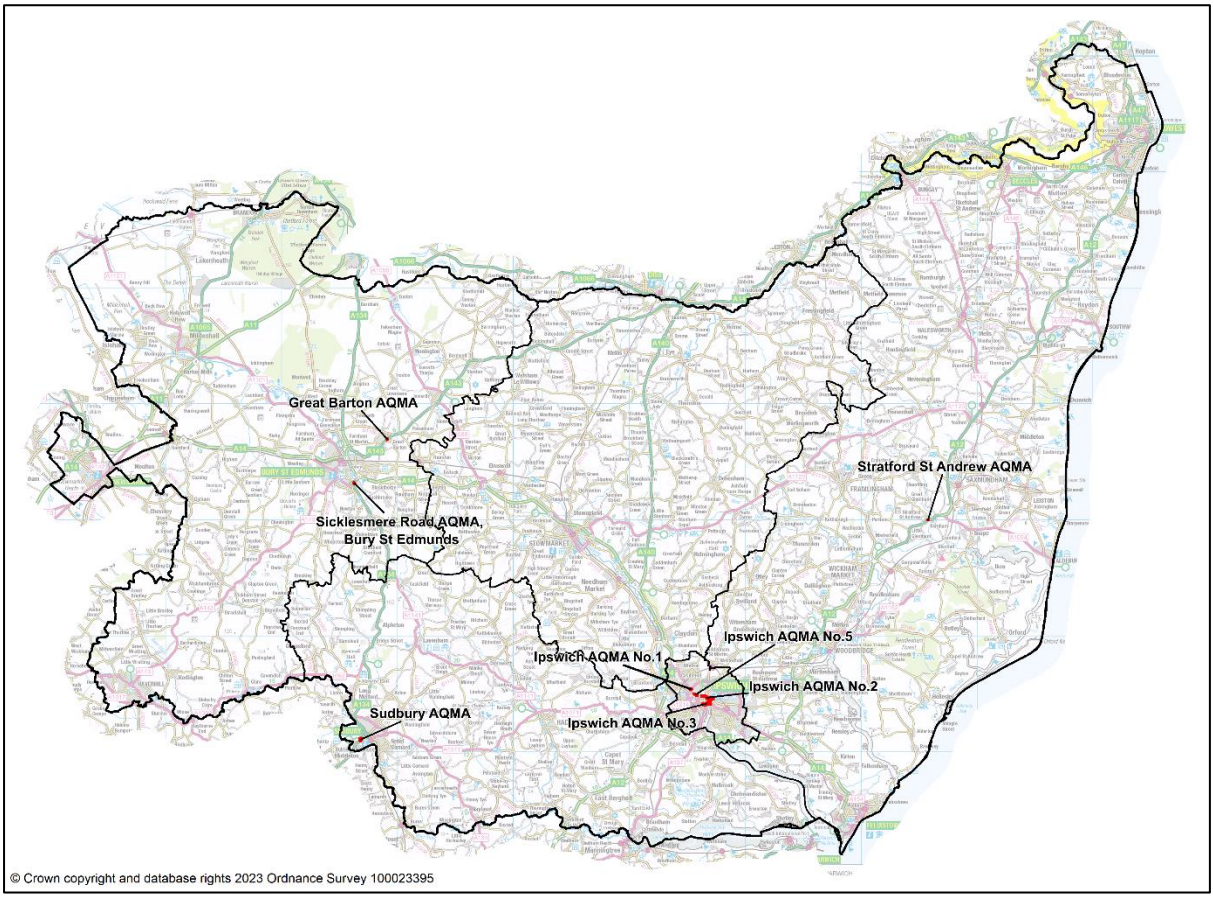
Each local authority in the UK carries out a review and assessment of air quality in their area. This involves measuring air pollution, predicting how it will change in future years. These reviews are conducted to ensure national air quality objectives will be achieved in the UK by specific deadlines, to protect people's health and the environment.

Any local authority that finds places where national air quality objectives are unlikely to be achieved, must declare an Air Quality Management Area (AQMA). These areas can vary in size, from 1-2 streets to most of a local authority. Local authorities with AQMAs must produce a plan to improve air quality – a Local Air Quality Action Plan[173].

As of October 2023, Suffolk has 8 AQMAs, with over half in Ipswich. Mid Suffolk has no AQMA areas declared.

In West Suffolk there are two Air Quality Management Areas, one in Great Barton and one in Bury St Edmunds. Babergh has one Air Quality Management Area located in Sudbury, while East Suffolk has one in Stratford St Andrew.[174].

Figure 35. Map of Suffolk's Air Quality Management Areas, October 2023



Source: Department for Environment Food & Rural Affairs – UK Air Information Resource

Indoor air quality

Indoor air quality is influenced by outdoor air ingress and indoor emissions sources. Limited indoor dispersion means concentrations often exceed outdoor levels. Evidence on indoor air quality mainly comes from small research studies, not extensive monitoring such as for outdoor air. This makes it hard to holistically assess indoor exposures, health impacts, and interventions over time. Indoor versus outdoor air contribution to exposure varies by pollutant, time spent, building features, and individual behaviours[175].

Reducing emissions from indoor sources like solid fuel burners would benefit both outdoor and indoor air. While improving outdoor air quality helps indoors too, increased urban ozone could promote indoor chemistry. Opportunities exist to improve indoor air via ventilation, filtration, and lower emission products, but changes may have costs and uncertain health impacts[175].

More information is available from DEFRA Air Quality Expert Group – Indoor Air Quality.

Sustainability of homes

While providing sustainable homes have direct benefits to the occupants, there are also wider societal benefits. For instance, studies show major potential for job growth

in home retrofitting in England. Parity Projects found over 150,000 people currently work in relevant trades, down from a peak of 250,000 in 2008[176]. All Hands to the Pump by IPPR determined over 300,000 new jobs could emerge by 2035 from upgrading homes for energy efficiency[177].

Retrofitting – sustainable housing targets (LEAR)

The UK's 30 million homes account for more than 21% of the country's total carbon emissions, with three-quarters of this coming from heating systems. 85% of UK homes are on the gas network, using fossil fuels and producing large quantities of carbon emissions[18]. One of the challenges to achieving net zero emissions by 2050 is transitioning the country's housing stock to utilize low carbon heating systems. government funding is available to retrofit homes to keep them safe and warm. The action of retrofitting also leads to significant cost savings elsewhere in the system[178].

While the largely unregulated private rented sector is home to the highest proportion of fuel poor households, most of the support available for retrofitting is only on offer to home owners. Social housing providers have identified barriers created by time consuming and costly application processes for retrofit funding[179].

The Energy Saving Trust state that more than 80% of the homes we will be living in by 2050 have already been built, and the majority will require major upgrades to reach required energy efficiency standards. To reach net zero by 2050, the Energy Saving Trust recommend that all homes must achieve an Energy Performance Certificate (EPC) rating of 'C' or above[18]. However, both in England and Suffolk, the largest proportion of households fall within band 'D'[137].

Social housing retrofit projects are already underway, but private homes require attractive financing options to drive adoption. More can also be done to raise awareness and tailored advice to homeowners on retrofits. There is also public scepticism of new technologies – these need to be normalised for initiatives such as heat pumps, to drive uptake further. Collaboration is required across the government, the housing sector, and the public to achieve retrofitting and net zero aims[18].

Retrofitting measures include:

- installing loft insulation and double glazing or assessing and refurbishing the entire house with several insulation measures to reduce heat loss
- installing a heat pump or similar low carbon technology to reduce the reliance on gas boilers[18]

The Centre for Ageing Better estimates that £2.3billion had been withdrawn in grant support over the last decade, preventing the repair of 600,000 homes[178]. It is estimated that £9billion is required to uplift England's worst housing, however that cost is expected to be recuperated within 9 years through savings to the NHS[4].

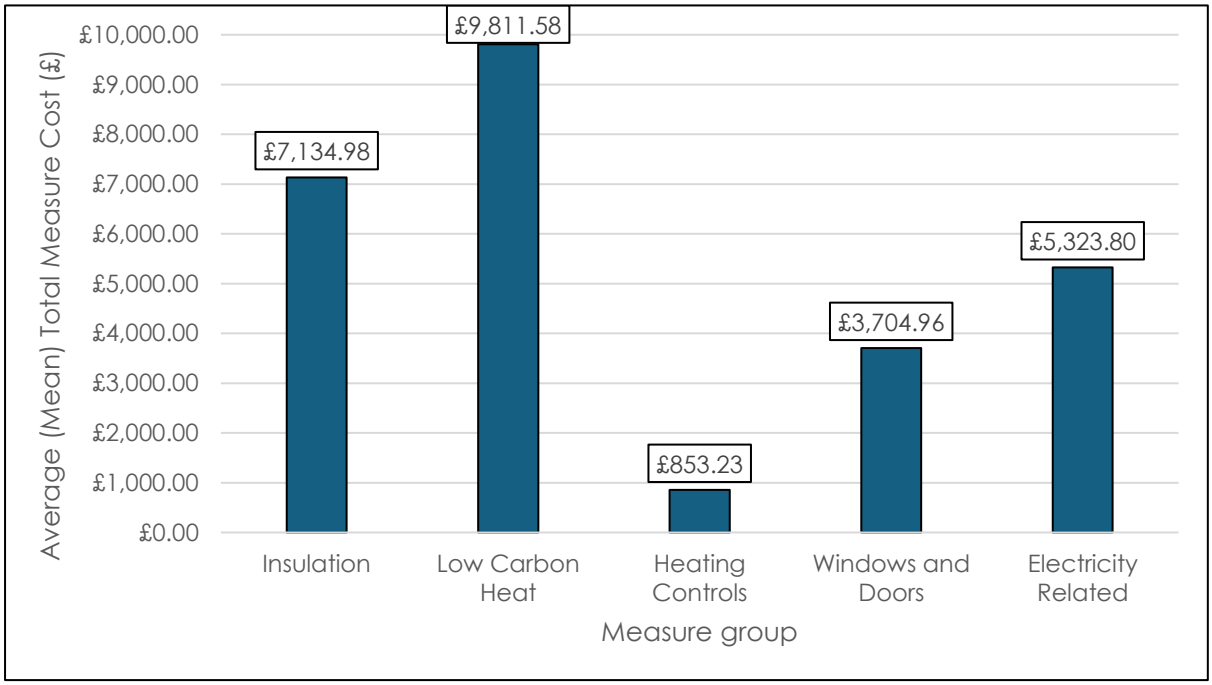
Data from the Green Homes Grant from March 2022 provides the average (mean) government total measure cost for various measures during the Green Homes grant scheme, which closed to applications on the 31st of March 2021.

These figures provide an indicator of the retrofitting costs of some measures, but due to the cost cap on funding schemes, a whole house may not have been retrofitted.

Vouchers under the Green Homes Grant covered up to two-thirds of the cost of improvements, with a maximum government contribution of £5,000. If someone in the household received certain benefits, the voucher could cover up to 100% of the chosen improvements, with a maximum government contribution of £10,000[33].

Low carbon heat measures cost the most, at £9,811 on average, with insulation measures also costing over £7,000 on average.

Figure 36: Average (mean) total measure cost under the Green Homes Grant, data until January 2022



Source: Green Homes Grant Local Authority Delivery (LAD) release, March 2022, Table T1.1

To combat the decline in national investment in home improvement, the report by the Centre for Ageing Better recommends:

1. creation of a national home improvement strategy to improve the quality of England's homes
2. establishment of a national network of regional one-stop shops that provide residents with access to advice and support for home improvement
3. implement recommendations from the Centre for Ageing Better's Triple Dividend report which identifies £625million of annual home improvement funding[178]

Before the 2021 UN Climate Change Conference COP26, the UK government submitted its commitment to cut emissions in the Nationally Determined Contribution plan. This requires the UK to reduce emissions by 45% from 2018 levels by 2030. Even if all new power generation projects are completed on schedule, the government's pledge can only be achieved through major reductions in emissions across all

industries and sectors. The UK FIRES Minus 45 report illustrates how the UK government can cut UK emissions by 45% from 2018 to 2030. The below section details how the housing sector can reduce emissions to achieve the 45% reduction target[180].

Data from the Suffolk LEAR is produced from a variety of sources. Building age, type and size are established by processing Ordnance Survey data. Energy Performance Certificates (EPCs) are matched to buildings where they are available, providing additional building detail such as whether a property has double glazed windows, cavity, or solid walls, whether walls have been insulated, and what type of heating system is installed. These additional building details are modelled by comparing known information about a property with similar properties, using the English Housing Survey[129].

The figures below are the national requirements and 2030 targets to achieve the UK's net zero target in 2050. Also included are what Suffolk's contribution would be to realise these targets.

Table 6. National requirements and targets to achieve the UK's net zero target in 2050, including Suffolk contribution to achieve these targets

National target	Suffolk contribution
• install 1,000,000 heat pumps per year by 2028	Suffolk had 5,288 air source heat pumps installed in 2021. To meet the national target of 1,000,000 heat pumps per year by 2028, Suffolk would have to be installing over 11,000 heat pumps each year until 2028 and beyond. As there are currently just over 3,000 new households built in the county each year, a significant proportion of heat pump installation would need to be retrofits, rather than solely included in new builds[181].
• retrofit 35% of homes with no loft insulation by 2030	39,375 homes in Suffolk had no loft insulation in 2021. To achieve the national target of retrofitting 35% of homes without loft insulation by 2030, Suffolk will need to retrofit 13,780 homes[181].
• retrofit 30% of homes with no cavity insulation by 2030	20,160 Suffolk homes had no cavity insulation in 2021. To reach the 2030 target of retrofitting 30% of Suffolk homes lacking cavity wall insulation, approximately 6,050 households need cavity insulation installed[181].
• retrofit 30% of solid wall homes by 2030	In 2021 in Suffolk, there were 23,175 non-cavity homes without internal or external wall insulation. To reach the

	30% solid wall target, Suffolk will need to retrofit 6,950 solid wall households[181].
• retrofit all rented homes to EPC rating A by 2030	Within the Suffolk LEAR in 2021, there were 112,385 households rented. 61,716 were privately rented, 19,071 were local authority rented, and 31,600 were rented from a registered provider. EPC data is not available for different tenure types, therefore EPC ratings have been applied for all properties. In Suffolk in 2021, only 0.3% (867) of households were classified as EPC rating A[137]. As a result, Suffolk needs to retrofit 112,000 rented properties by 2030 to EPC rating A by 2030 to meet this target[181].
• subsidise low-income household retrofits	To achieve these retrofit objectives, support will be required for those on low incomes. 47,450 households in Suffolk in 2021 were in fuel poverty (14.1%)[172], all of which would experience significant health benefits from retrofitting.

Source: Suffolk Observatory Housing Dashboard

A report from the National Audit Office (NAO) in March 2024 also found that only 55,000 heat pumps were sold in the UK in 2022. The NAO said the main reasons for low uptake were limited public awareness of the technology, higher costs relative to gas boilers, and the lack of long-term financial support for households[182].

More information on retrofitting and the Suffolk targets emerging from the LEAR can be viewed within the Suffolk Observatory Housing Dashboard.

Suffolk County Council currently offers funding for Suffolk residents to make their homes warmer by providing a 50% discount off their purchase of loft insulation, up to the value of £200.

The Government resource Find ways to save energy in your home and the energy efficient home campaign also provides practical steps property owners can take to make properties cheaper to heat and keep warm.