Reducing Energy Bills through Retrofit

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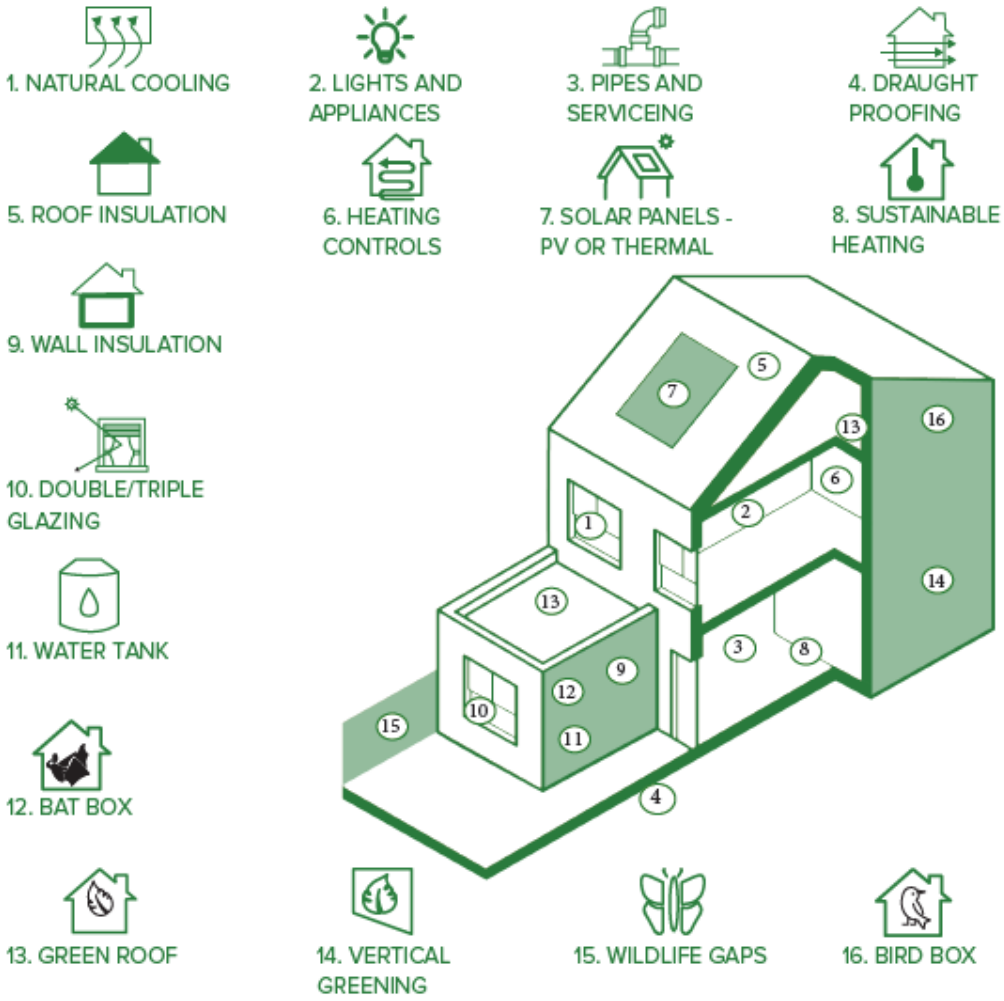

INTRODUCTION

Multidisciplinary team of architects, planners & urban designers

Expertise in specialist housing

Passivhaus Designers as part of the team

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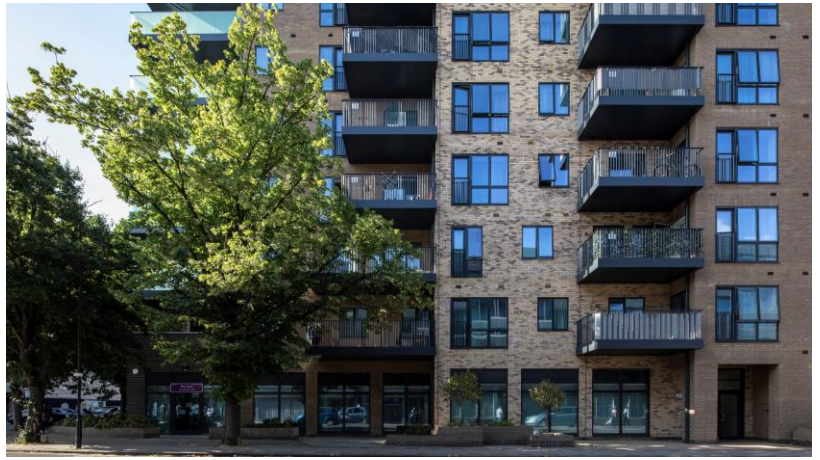
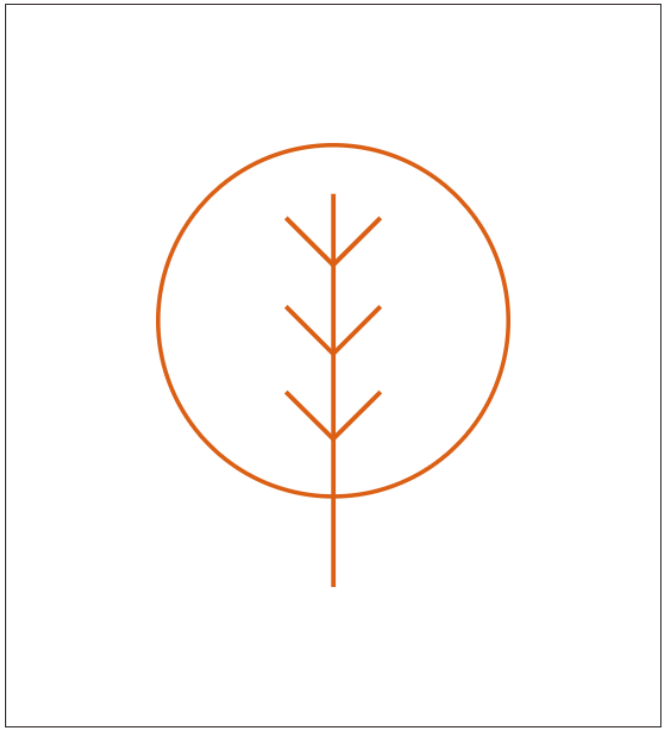
WWA is a leader in the built environment, an innovative multi-disciplinary Practice creating outstanding people-centric places that care for our heritage.



INTRODUCTION

1. Explanation of Retrofit and EPCs
2. Typical Retrofit Interventions
3. Financial Assistance
4. Holistic Approach



WHAT IS RETROFITTING?

"*Retrofit refers to any improvement work on an existing building to improve its energy efficiency, making them easier to heat, able to retain that heat for longer, and replacing fossil fuels with renewable energy.*"– Centre for Sustainable Energy

Retrofitting houses helps to reduce energy bills in two ways:

1. Reduce energy usage
2. Generate their own energy

WHAT IS AN EPC?

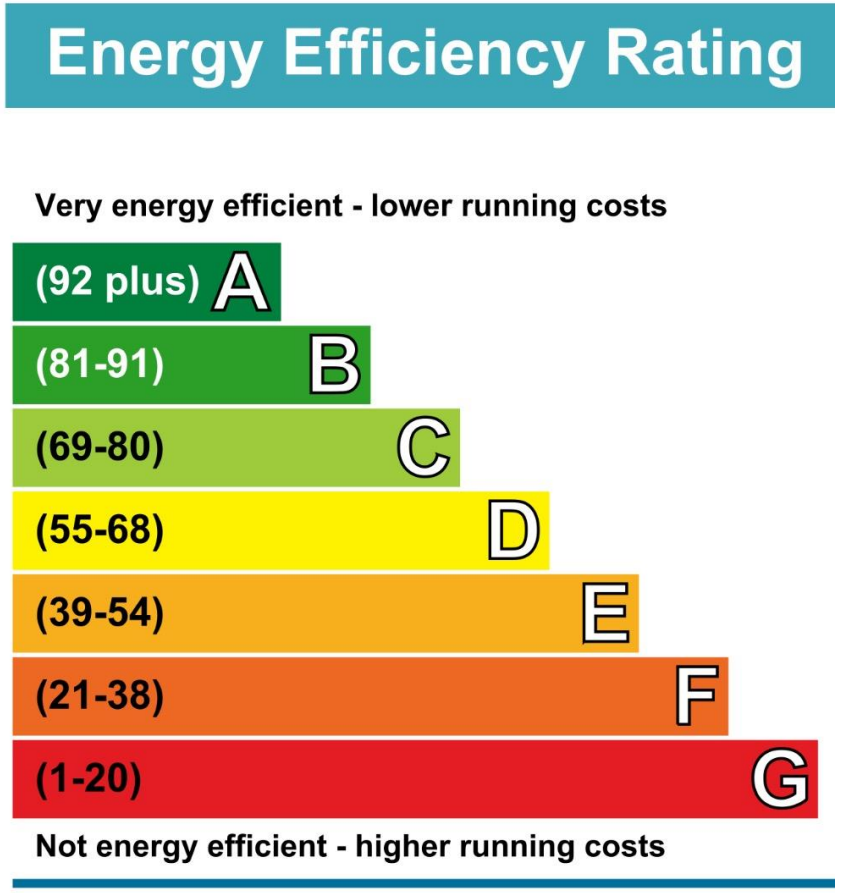
An EPC is an energy rating for your home calculated by a qualified assessor.

It includes:

- Potential for heat/energy loss
- Level of insulation
- What glazing there is

A score is received for each section and it is then averaged

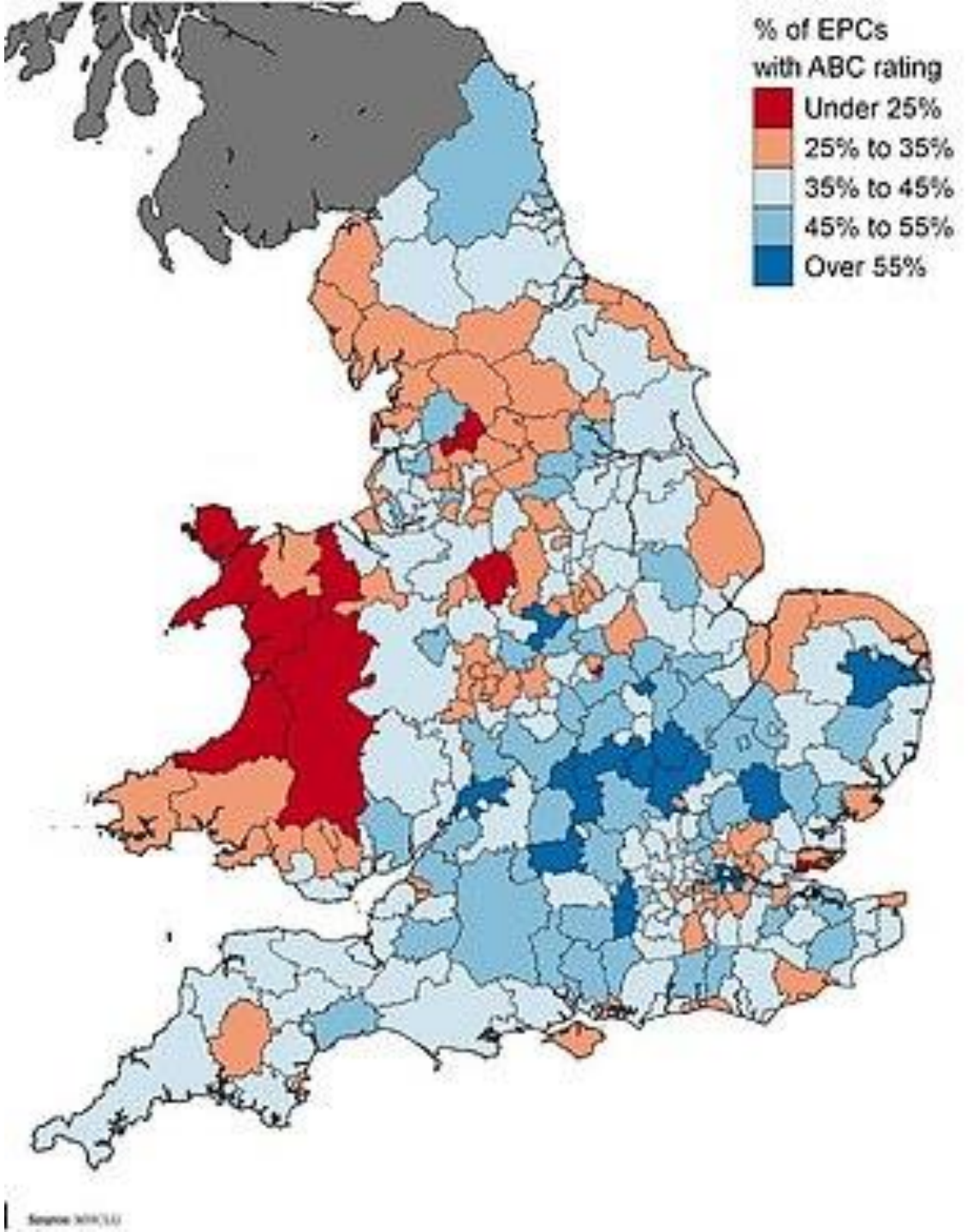
A is the best score with G being the worst



EPC RATINGS IN ENGLAND & WALES

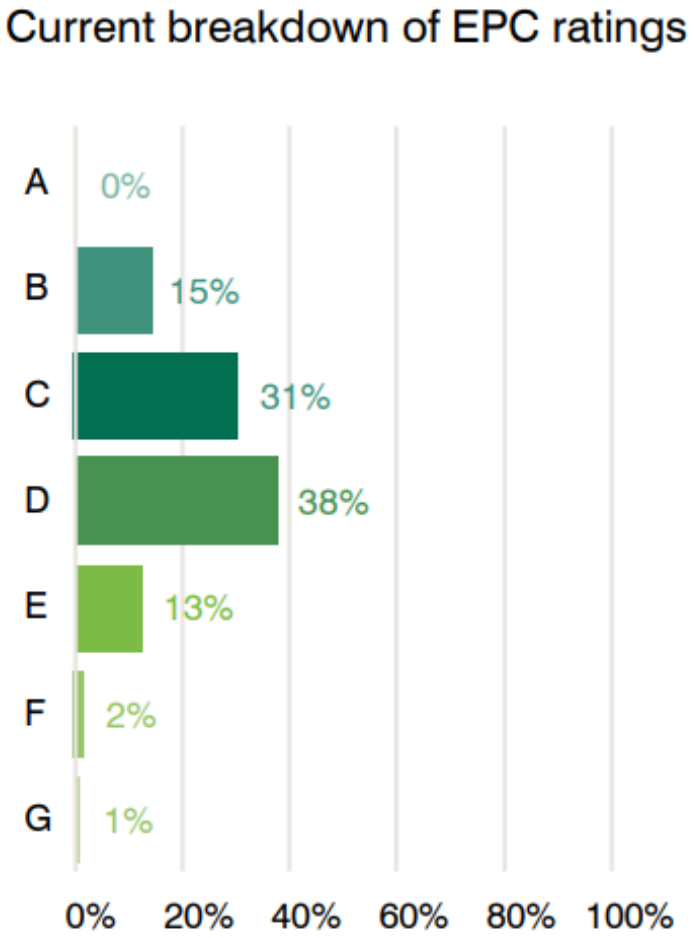
England and Wales both have a median energy efficiency rating in **Band D**, with scores of 67 and 65 – ONS data

Social rented dwellings had the highest median energy efficiency score across all property tenures in both England and Wales – ONS data



EPC RATING TARGETS

1. Social housing providers - **EPC C by 2030**
2. Private lettings – **EPC C as early as 2025** (Government Bill has only had 1st hearing)
3. Private home ownership – **currently no regulation**

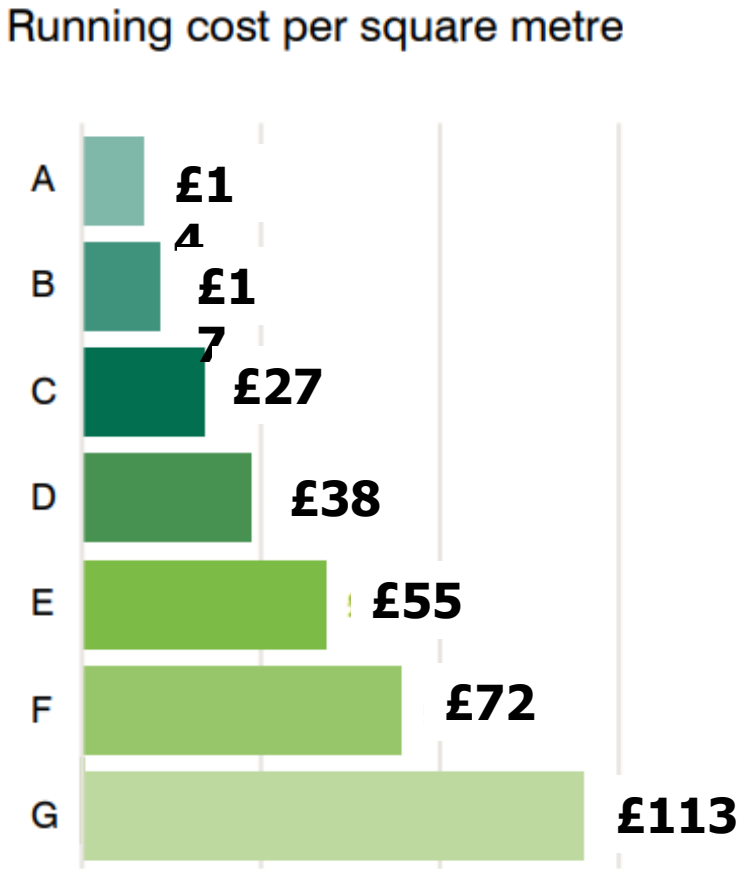


EPCs & COSTS

Based on typical 3 bedroom house with 5 occupants

A	£14 per m^2	=	£1,302 per year
B	£17 per m^2	=	£1,581 per year
C	£27 per m^2	=	£2,511 per year
D	£38 per m^2	=	£3,534 per year
E	£55 per m^2	=	£5,115 per year
F	£72 per m^2	=	£6,696 per year
G	£113 per m^2	=	£10,509 per year

Extrapolated CBRE data from 2020 in line with energy cost increases



COST OF IMPROVING EPC

Average cost required to 'upgrade' EPC bands, by installing all of the recommendations listed on certificates - Savills

		Potential rating						
		A	B	C	D	E	F	G
Current rating	A	£7,110						
	B	£10,919	£4,263					
	C	£20,437	£12,302	£4,937				
	D	£32,915	£18,588	£12,746	£6,244			
	E	£40,451	£23,542	£17,156	£11,357	£5,152		
	F	£44,933	£29,237	£22,873	£18,823	£13,070	£6,303	
	G	£47,163	£31,879	£26,791	£23,866	£20,077	£19,745	£15,461

Average homeowner stay

£1,000 per year saving

Average energy saving

Payback

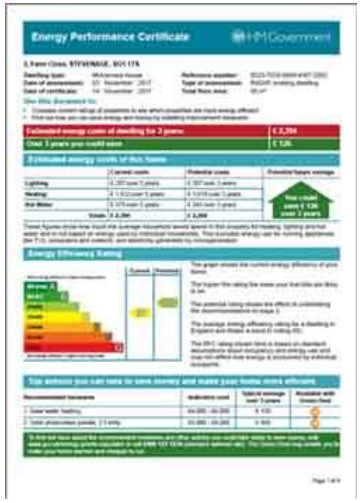
12.7 years

Average payback

UNDERSTANDING WHERE IS ENERGY LOST

Before starting to retrofit the first step would be to understand the energy loss from a property.

1. Minimum – pay for a proper EPC assessment and know when heating system was installed



2. CIBSE have suggested 30% of heat loss is due to air infiltration so an air test would be beneficial

3. Heat mapping – also could be beneficial

RETROFIT INTERVENTIONS

4 main retrofit categories:

1. Improved insulation & air tightness - *53% of D rated properties are uninsulated*
2. Improved services – *only 33% of D rated properties have energy efficient lighting*
3. Improved controls – *10% of D rated properties have no heating controls*
4. Renewable energy solutions

RETROFIT INTERVENTIONS

Loft **insulation**

- Should be a minimum 270mm
- On new builds we are typically putting in 400mm

Advantages

- Low cost
- Easy to install

Important note

- Ensure roof void ventilation is not compromised

Typical Cost	Typical Saving
£200-£500	£47 per year

RETROFIT INTERVENTIONS

Cavity wall insulation

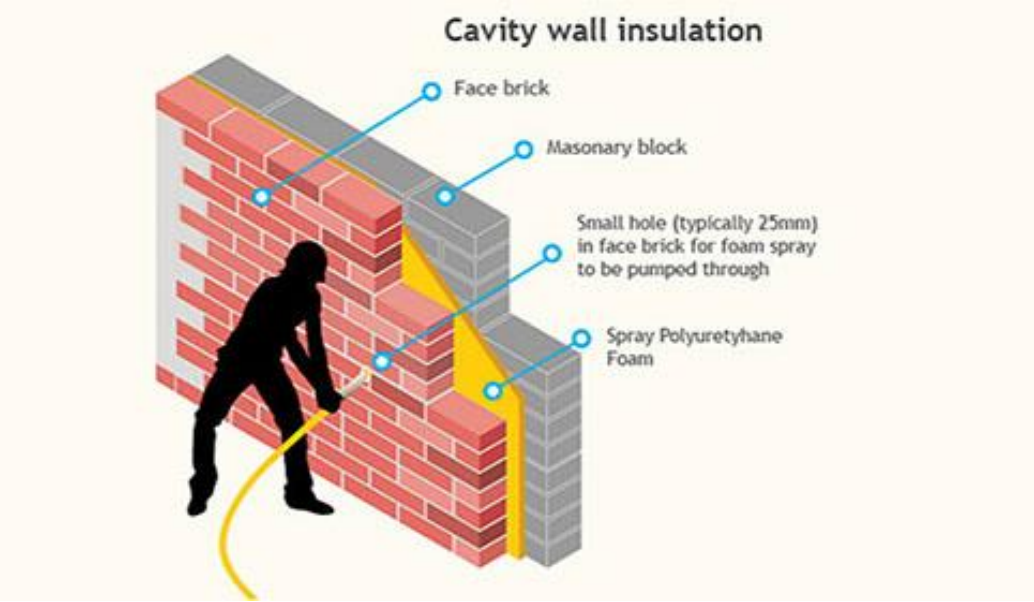
- Install cavity wall insulation

Advantages

- Relatively straightforward to install
- Relatively short payback period

Important note

- Analysis of property should be undertaken to ensure dew point is in correct location



Typical Cost	Typical Saving
£500-£1,000	£179 per year

RETROFIT INTERVENTIONS

Hot water tank jacket

- Wrap around tank

Advantages

- Low cost solution
- Shortest pay back period
- No tradesmen required in the majority of cases

Important note

- Pipe lagging can also help

Typical Cost	Typical Saving
£25	£35 per year

RETROFIT INTERVENTIONS

Draught proofing

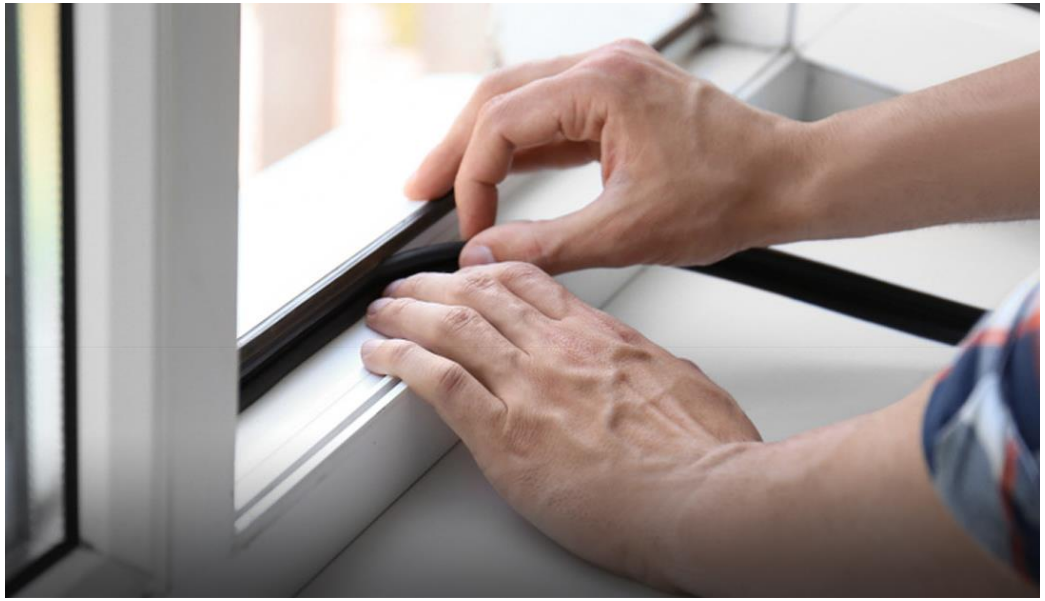
- Seal gaps in property
- Normally around doors and windows

Advantages

- Low cost solution
- Short pay back period
- No tradesmen required in the majority of cases

Important note

- Consider if trickle vents are present in the windows



Typical Cost	Typical Saving
£80-£120	£26 per year

RETROFIT INTERVENTIONS

Replace boiler

- Upgrade to a more efficient boiler

Advantages

- Should not be complex
- Relatively unintrusive

Important note

- Timing important to avoid cold periods
- Massive impact on EPC rating

Typical Cost	Typical Saving
£2,200-£3,000	£339 per year

RETROFIT INTERVENTIONS

Upgrade to Energy Efficient Lighting

- LED lighting throughout property

Advantages

- Extremely quick payback
- No tradesmen required in the majority of cases

Important note

- Dimmer switches will need changing to be compatible with LED bulbs

Typical Cost	Typical Saving
£60	£43 per year

RETROFIT INTERVENTIONS

Install heating controls

- Thermostat or better smart thermostat

Advantages

- Control for individual
- Gives occupants greater awareness of usage

Important note

- Cost dependent on location of boiler

Typical Cost	Typical Saving
£500	£100 per year

RETROFIT INTERVENTIONS

Install solar panels

- Can be PV or solar water

Advantages

- Payback is getting shorter
- Build resilience into property

Important note

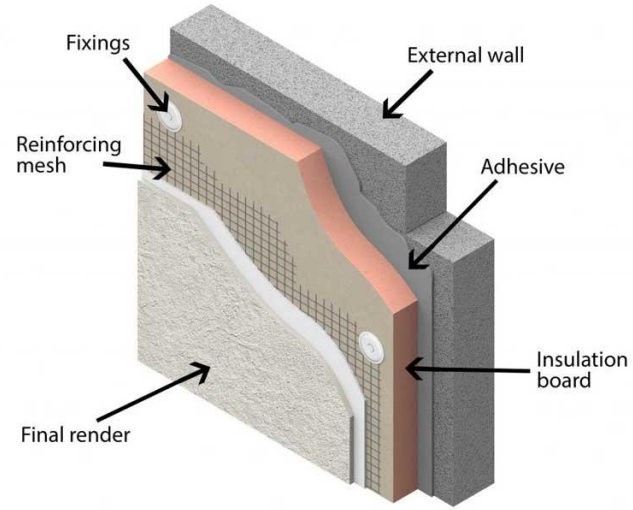
- Analysis of best location for panels is required

Typical Cost	Typical Saving
£5,000-£6,000	£514 per year

RETROFIT INTERVENTIONS

Other solutions:

- Ground floor insulation - £1,000-£2,000
- Double glazing - £4,000 (typical)
- Air source heat pump - £8,000-£18,000
- Ground source heat pump - £20,000-£40,000
- Internal/ external wall insulation - £8,000-£10,000



Energy Saving Trust, my builder, Checkatrade, Greenmatch UK

WHAT HELP IS THERE?

Registered Providers

1. £179 million for Registered Providers to improve 20,000 properties with EPC D or lower
2. Funders looking at lower interest rates on loans if RIBA Climate Challenge 2030 targets are met
3. Smart Export Guarantee - enables Generators to receive payments from electricity suppliers for electricity which they export back to the National Grid
4. Boiler Upgrade Scheme (BUS) supports the decarbonisation of heat in buildings

Individuals

1. Various payments available for people most in need
2. Grants – Check with energy companies what is available
3. Energy Company Obligations (ECO) scheme – provide assistance to those most in need with new boilers and insulation
4. Green deal – finance offer rather than grant
5. Feed-in-tariff – sale of renewable energy back to grid

HOLISTIC APPROACH

Can accessibility improvements be undertaken at the same time?

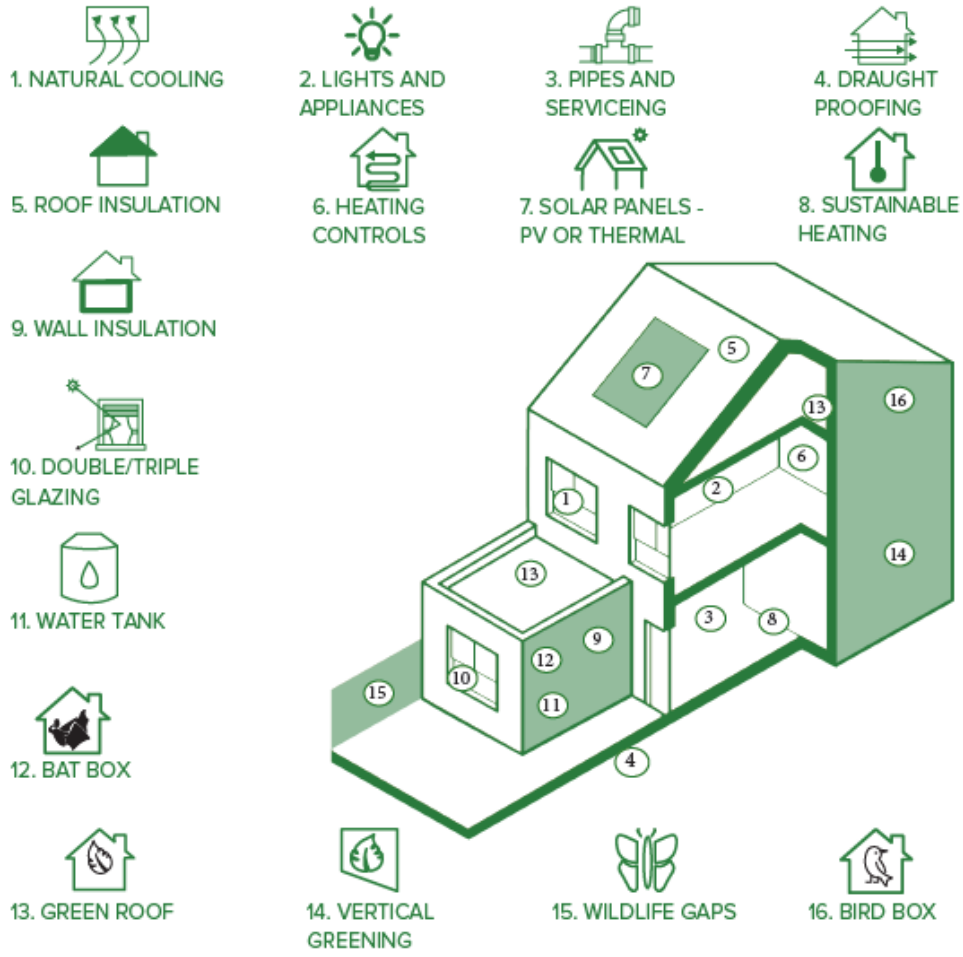
- Can doors be widened if installing new external doors?
- If improving floor insulation can any level differences within the property be improved?
- If introducing new controls can they be set at the correct height?
- If fitting new windows can handles be located in easy to reach locations?
- Internal insulation should not compromise accessibility!

HOLISTIC APPROACH

1. Planning – any external alterations may require planning permission and options available might be limited in Conservation Areas and on Listed Buildings
2. Lifestyle – reduce demand is the best way of reducing cost. Smart meters can help awareness.
3. ESG of mortgage providers – many mortgage providers will be looking to increase the number of A-C properties in their portfolios
4. Lower mortgage rates for properties of EPC A & B by some providers

CONCLUSION

1. Retrofit and EPCs – many benefits to trying to improve EPCs – social value &
2. Typical Retrofit Interventions – many different solutions and there is no silver bullet
3. Financial Assistance – key to set a budget and see what is best rather than trying to do everything
4. Holistic Approach – could this be undertaken alongside other property improvements



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REFERENCES & FURTHER READING

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HELP WITH BILLS

Specific Help with Energy Bills:

- **Winter Fuel Payment** – a fuel payment for people born on or before 25 September 1956.
- **Winter fuel support scheme** – an annual payment for Welsh households in receipt of certain benefits.
- **Cold Weather Payment** – a payment for every 7 days of very cold weather between November and March.
- **Warm Home Discount** – a discount for some people getting Pension Credit or some people in low-income household.
- **Household Support Fund** – a funding package to help vulnerable households. Contact your local council for advice and help on accessing the fund.
- **Child Winter Heating Assistance** – an annual payment per disabled child and young person under 19 living in Scotland.