Retrofit NEWS

INFORMATION FOR ESTATES & LANDLORDS | ISSUE 1

Refurbishing older properties for tenant comfort, bill reduction & energy efficiency

THE CHALLENGE

Rapidly rising energy prices over the last decade have put many tenants into fuel poverty and increased financial strain on tenants, making it more difficult to pay rent. At the same time, expectations of comfort levels in our homes have risen.

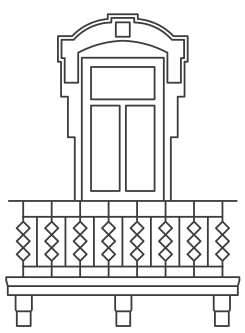
Period properties retrofitted to achieve modern standards of insulation (while preserving their character and beauty) make for happy tenants who are more able to pay the rent and remain in the property for longer.

MINIMUM ENERGY EFFICIENCY STANDARDS

Minimum Energy Efficiency Standards (MEES) came into force in April 2018 and require rented properties to have a minimum EPC rating of E. This is expected to rise to D in 2023 and C in 2030.

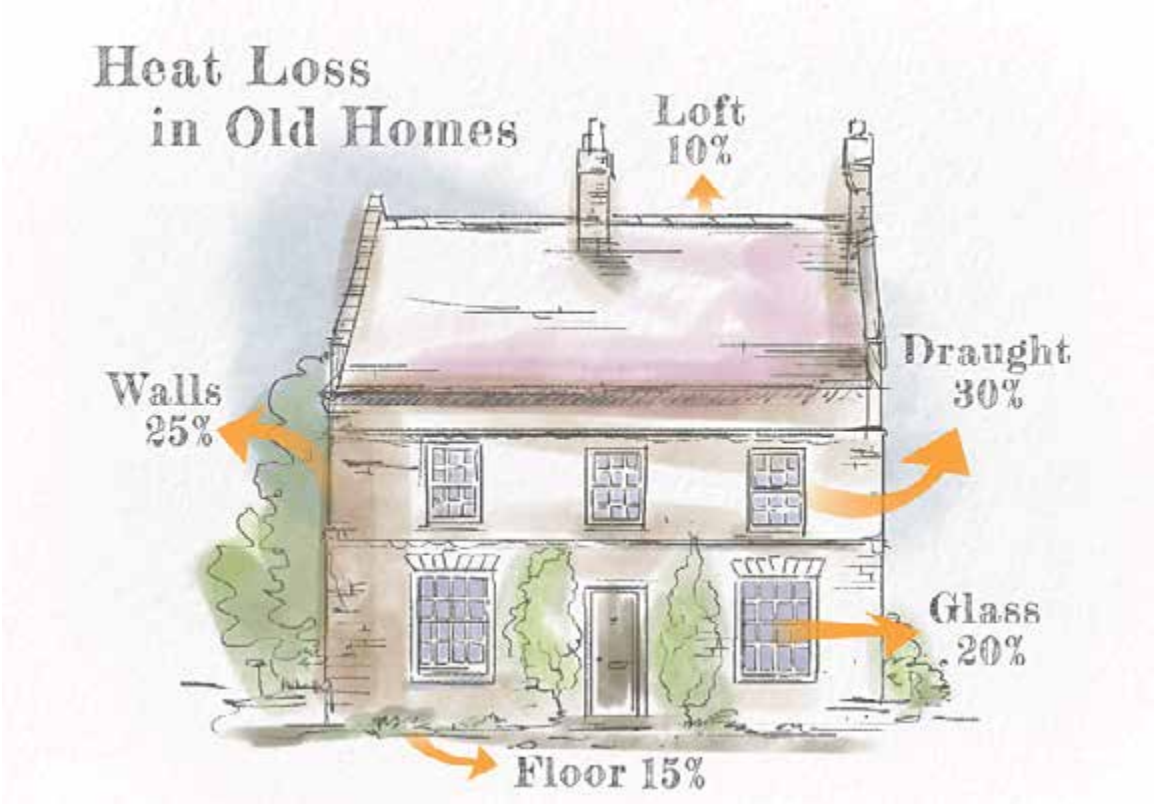
For many old properties this means improving loft and sloping ceiling insulation, draught proofing, secondary glazing and sometimes heating systems, among other measures.

The UK has legally committed to reducing CO2 emissions by 2050 and this can only be achieved if Britain's old housing stock is fully insulated.



THE SOLUTIONS

Heat loss in a typical three bedroom detached house is as follows:



Loft and sloping ceiling insulation, draught proofing and secondary glazing can save 40 - 50 per cent of heat loss in an older property. Case studies show tenants reporting greatly increased warmth and comfort with fuel bills reduced by half.

In terms of EPC ratings, the above insulation measures in some cases take properties from G rating up to the required E rating. In other cases, the addition of high heat retention storage radiators is necessary to reach E rating and sometimes D rating is achieved.

BENEFITS OF INSULATION & SECONDARY GLAZING

- Enhanced warmth and comfort
- Fuel bills reduced by up to 50 per cent making it easier to pay rent
- Lifts many tenants out of fuel poverty
- Increased tenant health, wellbeing and happiness
- Longer tenancies and tenants willing to accept rent increases
- Property is easier to maintain and building fabrics preserved
- Avoid having to apply for exemptions every five years
- Enhances reputation and perception of landlord


Fig 1


Fig 2

5 ways to make period homes warmer

LOFT INSULATION (Fig1)

Loft insulation is a simple-to-install measure that can be employed in almost all period properties. Increasing the thickness from 50mm up to 300mm saves 70 per cent of heat escaping through the loft. Sheep's wool loft insulation has a four times longer life than rock wool and is unaffected by disruption such as electricians and plumbers working in the loft or tenants storing belongings there. Rock wool has a lower installation cost but has to be maintained undisturbed to avoid damage.

SLOPING CEILING INSULATION (Fig 2)

Sloping ceiling insulation applies to rooms that are partly in the roof, otherwise known as "room-in-roof" insulation. A sloping section of ceiling only has a sheet of plasterboard between the room and the external-temperature air circulating between the rafters. The area therefore loses a large amount of heat. The solution is to fix insulation boards on the inside of the sloping ceiling, cover them with plasterboard and re-plaster. This attracts a large number of EPC points and significant grants under the ECO grant scheme.

ELEGANT DRAUGHT PROOFING (Fig 3)

Concealed brushes and draught proofing seals with timber beads make it possible to reduce draughts in listed and period properties without compromising the beauty of old doors and windows. Care must be taken not to seal up the property too tightly so that there is still a healthy level of ventilation.

ADVANCED SECONDARY GLAZING (Fig 4)

Advanced secondary glazing consisting of plexiglass applied with magnetic tapes is more thermally efficient than traditional forms of secondary glazing – with the added advantage of being virtually invisible inside and out. It usually requires no listed building consent due to being reversible and invisible from outside. The advantages are that sash windows and casement windows can be opened as usual with the secondary glazing attached to the moving sashes, while 70 per cent of the heat is saved. This can be applied to every type of window including metal crittal windows, stone mullions, leaded windows and all shapes of wooden framed casement and sliding sash windows, including those with arches and curved glass.

WINDOW RESTORATION (Fig 5)

The UK has approximately 270 million windows. If these were replaced every 27 years it would mean throwing 10 million windows per year into landfill (with a massive impact on the countryside). Many of these listed windows are over a hundred years old and, if well maintained, will last for another hundred. The best restoration techniques involve using epoxy resin – a high-tech material from the marine industry – combined with reclaimed pitch pine or similar durable softwoods or sustainably grown hard woods such as European oak. Replacing individual glazing bars, rails and sills allows many condemned windows to be restored to their original lifespan while retaining 90 per cent of the historic timber and glass at a fraction of the cost of new windows.


Fig 3


Fig 4


Fig 5

Low hanging fruit

The following tables show how the low hanging fruit of insulation – loft and sloping ceiling insulation, draught proofing and advanced secondary glazing – saves up to 40 per cent of heat in a detached house and 50 per cent of heat in a mid-terrace house.

HEAT LOSS IN A 2-STOREY DETACHED HOUSE			
Area	**Before**	**Action**	**After**
Loft	10%	Top up to 300mm	3%
Glass	20%	Secondary glazing	6%
Draughts	30%	Draught proofing	9%
Walls	25%	-	25%
Floors	15%	-	15%
Total	100%	All	58%
Heat saving			**42%**

HEAT LOSS IN A 4-STOREY TERRACED HOUSE			
Area	**Before**	**Action**	**After**
Loft	7%	Top up to 300mm	2%
Glass	28%	Secondary glazing	8%
Draughts	41%	Draught proofing	12%
Walls	14%	-	14%
Floors	10%	-	10%
Total	100%	All	46%
Heat saving			**54%**

Case study: *Lisa Pritchard*

Lisa lives in a four bedroom cottage on the Clovelly Estate in Devon. It's one of Devon's most beautiful, historic villages, but for many years she braved the Atlantic gales with her Rayburn on full blast, knowing she was spending hundreds of pounds battling the draughts – and losing. Most of Clovelly's buildings are listed, a designation designed to protect its heritage but which means that fitting double glazing isn't an option.

Lisa reports that her fuel bills have dropped by 50 per cent

Her landlord brought in Mitchell & Dickinson to implement four solutions for her draughty cottage: secondary glazing, sheep's wool loft insulation, sloping ceiling insulation and draught proofing.

THE RESULT

Lisa reports that her fuel bills have dropped by 50 per cent from £2,400 per year to £1,200. She says, 'I noticed the change straight away. I'm buying half the coal I used to, so it's saving me 50 per cent on my fuel bills and when that is £40-50 a week it soon mounts up.

'Last year, for the first time, we didn't light the Rayburn from May to September at all, and did so only a few times in March and April. I used to put an electric heater in the children's bedroom for three hours every evening and last winter I only used it once. People would be crazy not to have it done.'

Achieving E ratings in historic buildings

COST EFFECTIVENESS OF MEASURES TO ACHIEVE EPC POINTS			
Measure	**Average cost**	**Average points**	**Cost per point**
High retention radiators	£4,729	21	£230
Room-in-roof insulation	£3,601	11	£325
Loft insulation	£691	1	£691
Draught proofing	£1,382	1	£1,041
Secondary glazing	£3,710	4	£1,068
Total	**£14,113**	**38**	**Av. £371**

COST EFFECTIVENESS OF MEASURES TO ACHIEVE HEAT SAVINGS			
Measure	**Average cost**	**% Heat saving**	**Cost per % saving**
Draught proofing	£1,382	20%	£69
Loft insulation	£691	7%	£99
Room-in-roof insulation	£3,601	20%	£180
Secondary glazing	£3,710	14%	£265
High retention radiators	-	-	-
Total	**£9,384**	**61%**	**Av. £154**

The order of priority of measures to achieve E rating at the lowest cost is different from the order of priorities for achieving maximum heat savings at the lowest cost.

If a landlord wants to achieve E ratings but is not concerned about significantly improving the comfort of the tenant, the most cost effective measures are room-in-roof insulation and high heat retention storage heaters. However, if this route is followed, the tenant is likely to find the storage radiators expensive to run because the building is leaking so much heat.

If the aim is to both achieve E ratings and also significantly improve the comfort and fuel costs for the tenant, the best approach is to fit insulation measures first to reduce heat loss from the building by 40-50 per cent, then fit high heat retention storage radiators.

In this case, less heaters will be required to keep the property warm, reducing install costs and making them more affordable to run. The tenant will feel warm, have significantly reduced fuel bills and the property will achieve E rating.

In the two tables opposite, the first shows the order of priority of measures for achieving maximum EPC points, and the second shows the order of priority of measures for achieving maximum heat savings.

Indicative costs for each measure are shown based on case studies from **Mitchell & Dickinson's work insulating the historic village of Clovelly in Devon**, which mainly has listed 2 to 4 bedroom properties with stone or cob walls, slate roofs and wooden single glazed casement windows.

IMPORTANT CONSIDERATIONS

Once draught proofing has been fitted, tenants should open windows regularly on dry days. Drying laundry inside releases around 2l of water for every load which causes damp and condensation, so alternative means of drying are helpful. Mechanical ventilation heat recovery systems are another way to achieve dry, fresh air without losing heat. Window timbers and putty need to be kept in good condition to avoid rainwater ingress and condensation.

GRANTS

The most reliable grant system in recent years is the **Energy Company Obligation** (ECO) which is expected to run for another 10 to 15 years. Data collected during the EPC survey provides background information that allows an ECO grant provider to calculate the grants available for each measure.

The new **Green Deal Finance Company** is offering loans for energy saving measures that are linked to the property and paid back through the electricity meter. This is designed to reduce the upfront costs for landlords and put the ownership of the loan onto the property rather than the landlord. The repayments made through the electricity meter are always less than the fuel savings from the insulation installed so the tenant will always have reduced bills once the process is complete. For more information visit **www.gdfc.co.uk**

Procedures for obtaining E ratings

The first step in the process is to arrange EPC and grant surveys for your properties. The ideal is to find an EPC surveyor who also conducts grant surveys and is familiar with the process of doing several draft EPCs.

The EPC surveyor should do a current EPC for the property and lodge this. At the same time, they should do several draft EPCs showing the number of EPC points you will achieve by installing loft installation, room-in-roof insulation, draught proofing, secondary glazing, HHR storage heaters, hot water tank lagging and any other recommended measures. EPCs work on a point score from 0 to 100 in which 0-20 is G, 21-38 is F, 39-54 is E, 55-68 is D, 69-80 is C, 81-91 is B and 92-100 is A.

The second step is to arrange for an insulation installer to survey the property and give quotes for all of the above measures. The information from the draft EPCs, grant calculations and insulation quotations can then be collated to show the order of priority of measures required to achieve E rating in the most cost effective way.

The installations can then be organised into a program of work to suit the budget of the landlord, prioritising empty properties first so that these can be immediately re-let, in a timescale to achieve E ratings for all properties by April 2020. Once each installation is completed, the property is re-surveyed and the final, post-work EPC is lodged. The property now has the required EPC rating and typically requires 40-50 per cent less energy to heat.

MINIMUM ENERGY EFFICIENCY STANDARDS, EXEMPTIONS & PENALTIES

Minimum Energy Efficiency Standards (MEES) apply to all rented properties for domestic or commercial use in the UK. The UK Government has legislated that, from April 2018, rented properties are required to have an EPC rating of E or above in order to be let to a new tenant. **From April 1, 2020 all rented properties are required to have E ratings even for existing tenants** (April 1, 2023 for commercial properties). The government has proposed that the minimum standard for a rented property will rise to D in 2023 and C and 2030, although this has not yet been legislated for.

There is a proposed cost cap of £2,500 per domestic property which landlords are expected to spend, and above which they can apply for an exemption on the grounds that upgrading the property is too expensive (the consultation results on this are expected in summer 2018).

Exemptions include properties that do not require an EPC, usually those with tenants in occupation since before 2002. Buildings with historic features can be exempt if it is proven they cannot reach the rating without spoiling the historic features. However, measures that do not compromise the historic features must be employed first. Exemptions must be renewed every five years or less and can require the services of a chartered surveyor.

The law on minimum energy efficiency standards is enforced by local authorities and **the maximum fine is up to £5,000 per domestic property per breach** (the fine ceiling is higher for commercial properties).

For more information on exemptions and penalties and all other aspects of MEES, see the government guidance notes on domestic and commercial properties:

www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents

MITCHELL DICKINSON
MAKING PERIOD HOMES WARMER

This newsletter is produced by **Mitchell & Dickinson**, the Devon-based company specialising in insulation and advanced secondary glazing for period properties, estates and landlords across Southern England and Wales. For more information contact details are below:

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