Department of Energy & Climate Change

27 June 2013

STATISTICAL RELEASE: EXPERIMENTAL STATISTICS

Estimates of Home Insulation Levels in Great Britain: April 2013

Key points

It is estimated that at the start of April 2013:

- There were 27.1 million homes in Great Britain. Of these 19.1 million had cavity walls with the remaining 8.0 million having solid walls. 23.7 million properties had a loft.
- 16.2 million homes had loft insulation of at least 125mm (68 per cent of homes with lofts). Of the 7.4 million homes with lofts without at least 125mm of insulation, only a small number are estimated to have no insulation – around 1 per cent of all properties with lofts.
- 13.4 million homes had cavity wall insulation (70 per cent of homes with cavity walls). Of the 5.3 million homes without cavity wall insulation, most are hard to treat, with only 0.7 million of them being easy to treat standard cavities.
- 205,000 homes had solid wall insulation (3 per cent of homes with solid walls).
- Through Government schemes since April 2008 (the start of CERT), there have been 5.5 million lofts insulated, 2.6 million cavity walls insulated and 140,000 solid walls insulated.
- Compared with April 2012, 1.4 million more properties had loft insulation of at least 125mm, 610,000 more had cavity wall insulation and 73,000 more had solid wall insulation.

Tables

Charts

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Accompanying Excel tables

More detailed tables are published alongside this release and can be accessed from: https://www.gov.uk/government/statistical-data-sets/estimates-of-home-insulation-levels-in-great-britain

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Introduction

This publication presents estimates of the number of homes in Great Britain with loft, cavity wall and solid wall insulation. It gives headline estimates for the number of insulated homes and a summary of the different data sources these are derived from. It also sets out the remaining potential for insulation in dwellings in Great Britain.

DECC set out in its Departmental Business Plan 2011-15[1] that these data for cavity wall and loft insulations would be used as one of the departments key impact indicators. This publication tracks progress with this indicator.

Sources and methodology

The estimates in this Statistical Release use 2008 housing survey data, which coincides with the start of the Carbon Emissions Reduction Target (CERT), and adds known measures delivered through Government schemes (these include CERT[2], the Community Energy Saving Programme (CESP)[3], Warm Front[4], Green Deal (including cashback)[5] and the Energy Company Obligation[6] (ECO)). This is supplemented with data on house building published by Communities & Local Government to provide an estimate for the latest quarter.

These estimates are released as Experimental Statistics which means they are official statistics undergoing an evaluation process prior to being assessed as National Statistics. They are published in order to involve users and stakeholders in their development, and as a means to build in quality assurance during development.

Headline results

Table 1 shows the number of properties in Great Britain with cavity wall, loft or solid wall insulation (see Appendix A for an explanation of measures). Annual estimates for the United Kingdom can be found in Appendix C of this publication.

At the start of April 2013, 13.4 million had cavity wall insulation (70 per cent of properties with a cavity wall), 16.2 million had loft insulation (68 per cent of properties with a loft) and 205,000 had solid wall insulation (3 per cent of properties with solid walls). It should be noted that measures installed as a mitigation action after the end of CERT and CESP are not yet included in these figures, and therefore actual delivery during the first quarter of 2013 is likely to be higher than reported in this document.

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[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47961/decc-business-plan-2011-2015.pdf

[2] http://www.ofgem.gov.uk/Sustainability/Environment/EnergyEff/CU/Pages/CU.aspx

[3] http://www.ofgem.gov.uk/Sustainability/Environment/EnergyEff/cesp/Pages/cesp.aspx

[4] https://www.gov.uk/government/policies/helping-households-to-cut-their-energy-bills/supporting-pages/warm-front-scheme

[5] https://www.gov.uk/green-deal-energy-saving-measures

[6] https://www.gov.uk/government/policies/helping-households-to-cut-their-energy-bills/supporting-pages/energy-companies-obligation-eco

Table 1: Insulated homes in Great Britain, April 2008 to April 2013 (Thousands)

Start of:	Cavity wall insulation	Loft insulation >=125mm	Solid wall insulation
April 2008	10,030	10,150	65
April 2009	10,760	10,930	74
April 2010	11,490	12,450	94
April 2011	12,090	13,540	102
April 2012	12,750	14,770	132
July 2012	12,970	15,250	144
October 2012	13,110	15,580	171
January 2013	13,320	16,110	204
April 2013 p	13,360	16,160	205

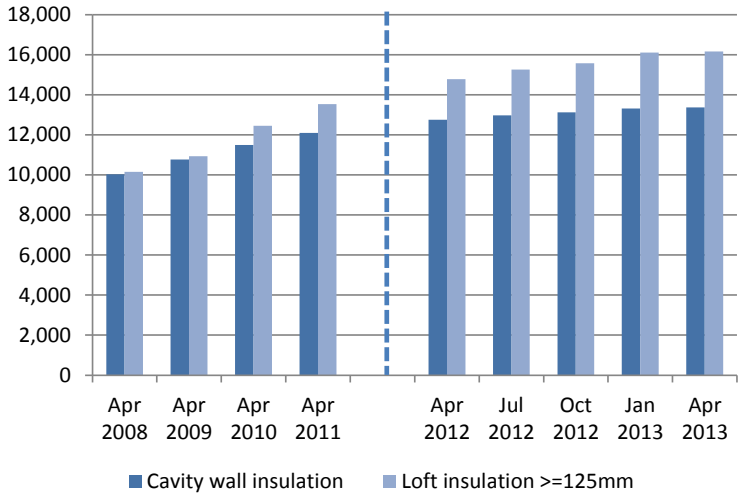
p, provisional figure.

Taking into account Government schemes and new properties[7] built during the last year, there were 1.4 million more homes with at least 125mm of loft insulation, 610,000 more homes with cavity wall insulation and 73,000 more homes with solid wall insulation compared with April 2012.

The number of retrofit wall and loft insulations in the first quarter 2013 is low compared to previous quarters. This partially reflects the high delivery at the end of the CERT and CESP schemes in 2012, but the quarter one data is also likely to be an underestimate of measures installed. This is due to mitigation action relating to CERT and CESP not being included in current figures. In September 2012 Ofgem published an open letter and stated that 'energy suppliers and generators may choose to continue to deliver measures after the deadline of 31 December 2012 as a 'mitigation action' to address the consumer harm associated with failure to meet their targets'. Ofgem expect to publish measures delivered as a mitigation action in autumn 2013.

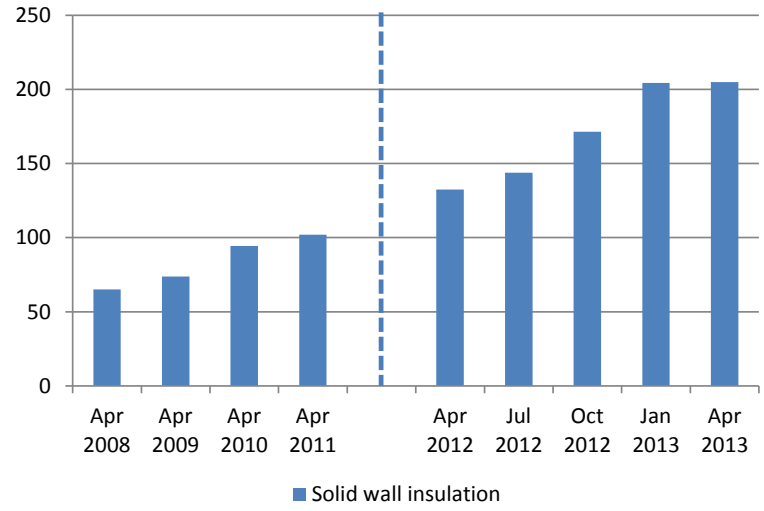
[7] Information is not available on the wall construction of new homes. Typically building regulations would be met by insulated cavity walls but other construction types could be used. In this publication it is assumed that all new builds since April 2008 have cavity wall insulation.

Figure 1: Homes in Great Britain with cavity wall insulation and loft insulation: April 2008 to April 2013 (Thousands)



- The number of properties with cavity wall insulation increased by 5 per cent (610,000) between the start of April 2012 and April 2013.
- The number of properties with loft insulation with a depth of at least 125mm increased by 9 per cent (1,390,000) between the start of April 2012 and April 2013.

Figure 2: Homes in Great Britain with solid wall insulation[8]: April 2008 to April 2013 (Thousands)



- The number of properties with solid wall insulation increased by 55 per cent (73,000) between the start of April 2012 and April 2013.

Sources of increase in insulation levels

Increases in the number of properties with insulation result from new properties being built[9] and from retro-fit insulation, predominately through Government schemes. Table 2 and Figures 3 and 4 show where the insulation estimates have come from. Delivery of measures through CERT has made the largest contribution since April 2008, for lofts and cavities.

[8] Solid wall insulation has been defined throughout this report as internal or external wall insulation installed through Government schemes.

[9] Information is not available on the wall construction of new homes. Typically building regulations would be met by insulated cavity walls but other construction types could be used. In this publication it is assumed that all new builds since April 2008 have cavity wall insulation.

CESP has accounted for the largest contribution of solid wall insulation, at the end of CERT and CESP in December 2012, 58 per cent of solid wall insulation installed through Government schemes was through CESP.

Table 2: Insulated homes in Great Britain by source, April 2013 (Thousands)

Source	Cavity wall insulation	Loft insulation >=125mm	Solid wall insulation^
April 2008 housing surveys	10,030	10,150	65
Properties built since April 2008	710	530	..
CERT delivery (professional)	2,570	3,510	59
CERT delivery (DIY)*	..	1,830	..
CESP delivery**	-	20	80
Warm Front delivery	30	90	..
Green Deal/ECO delivery since January 2013	20	30	-
Total	13,360	16,160	205
Homes in Great Britain†	19,130	23,690	7,990
Percentage of homes insulated‡	70%	68%	3%

^ 2008 estimates for solid wall insulation are taken from the Government's Energy Efficiency Commitment (EEC) 1 and 2 reported activity rather than housing surveys.
* Loft insulation is the only measure that can be delivered through DIY methods under CERT.
** CESP commenced in September 2009 with the first measure installed in January 2010.
† The number of homes in Great Britain with cavity walls, lofts and solid walls respectively.
‡ The solid wall insulation (SWI) percentage is calculated based on the number of homes with SWI delivered through Government schemes divided by the number of homes with non-cavity walls, this is likely to be an overestimate of the total number of properties with solid wall insulation as it may include a small number of hard to treat cavity wall properties.
- count less than 10,000.
.. not applicable.

Figure 3: Number of homes in Great Britain with cavity wall insulation and loft insulation by source, April 2013 (Thousands)

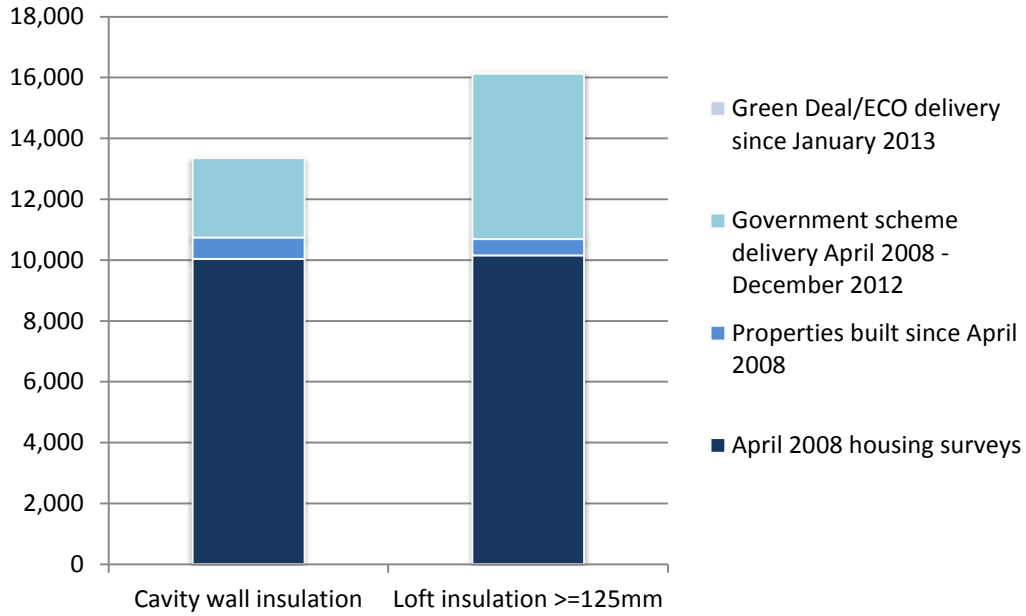
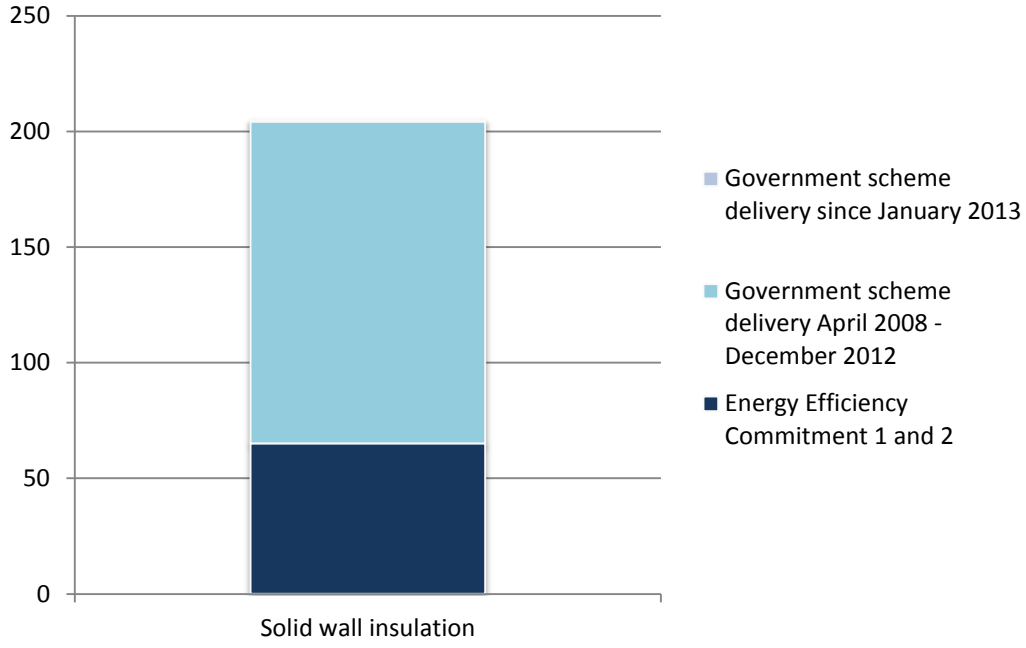


Figure 4: Number of homes in Great Britain with solid wall insulation by source, April 2013 (Thousands)[10]



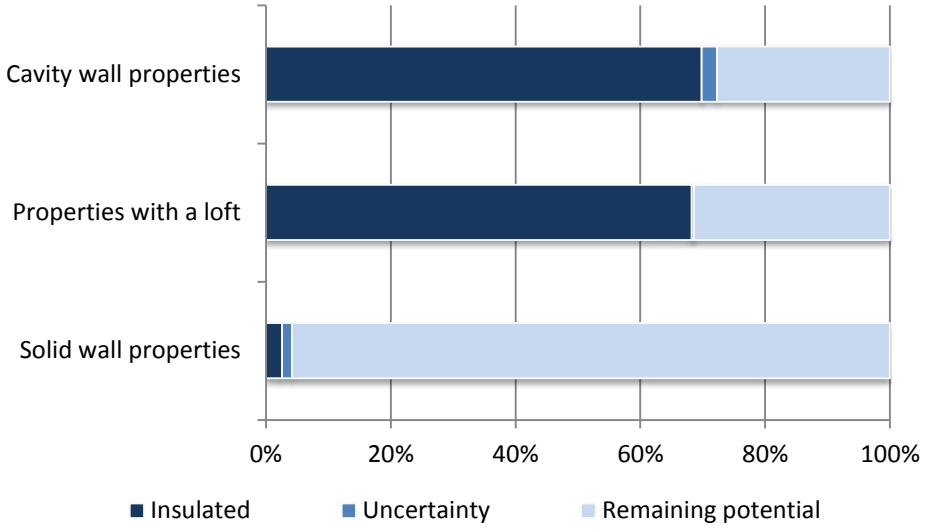
[10] Estimates of solid wall insulation are based only on delivery of solid wall insulation through Government schemes (including the Energy Efficiency Commitment).

Remaining potential

A key use of these estimates for DECC is to identify homes that have the potential to receive cavity wall, loft and solid wall insulation in the future. The section below outlines remaining potential figures as at the beginning of April 2013, for historical figures and a more detailed breakdown see Tables 3 to 7 in the Excel tables accompanying this publication[11].

Figure 5 gives a summary of the remaining potential for insulating the housing stock of Great Britain.

Figure 5: Remaining potential to insulate the housing stock in Great Britain, April 2013



Cavity wall insulation

Table 3 below gives a breakdown of the remaining potential to insulate cavity wall properties in the Great Britain housing stock. It is estimated that at the start of April 2013 there were 5.3 million cavity wall properties which could benefit from some cavity wall insulation (28 per cent of homes with cavity walls).

Of these 1.4 million are considered to have limited potential[12] (0.5 million of this 1.4 million are also considered hard to treat[13]) and 3.9 million are uninsulated (3.1 million of the 3.9

[11] https://www.gov.uk/government/statistical-data-sets/estimates-of-home-insulation-levels-in-great-britain

[12] Although these properties are not fully insulated it is likely that they already have a relatively good thermal performance which means savings from having cavity wall insulation installed would be lower than for older properties. Limited potential properties are those built between 1983 and 1995 for England and Wales, and between 1984 and 1991 for Scotland.

[13] Hard to treat cavities are ones that are more difficult or more expensive to fill than standard cavities. This can include properties with a narrow cavity, and properties of either concrete or metal frame construction. The definition of hard to treat used in this publication is based on a report commissioned by DECC using the 2008 Housing Surveys (http://www.decc.gov.uk/assets/decc/11/stats/energy/energy-efficiency/5620-review-of-the-number-of-cavity-walls-in-great-brit.pdf), the ECO definition of hard treat differs from this definition slightly as it also includes partial fill cavities and cavity wall dwellings over four storeys (compared to four in

million uninsulated properties are considered hard to treat). There are therefore 0.7 million easy to treat, standard cavities remaining. Historical figures and a more detailed breakdown is available in Table 6 of the accompanying Excel tables (https://www.gov.uk/government/statistical-data-sets/estimates-of-home-insulation-levels-in-great-britain).

Table 3: Cavity wall insulation, April 2013 (Thousands)

Insulation type	Insulated	Uncertainty*	Remaining potential**	Cavity wall properties
Cavity wall insulation	13,360	470	5,300	19,130
	70%	2%	28%	100%

* Properties which may or may not have cavity wall insulation.
** Not all remaining potential properties could be insulated and some which could be insulated would not be cost effective to insulate. This could be due to properties being hard to treat, having limited potential to save energy or having unfillable cavities.

Loft insulation

In this publication lofts are defined as insulated if they have 125mm or more of insulation. Lofts with less than 125mm of insulation are defined as uninsulated as they would benefit most from top up insulation.

Table 4 below gives a breakdown of the remaining potential to insulate properties with a loft in the Great Britain housing stock. At the start of April 2013 it is estimated that there were 7.4 million uninsulated lofts (31 per cent of homes with lofts). Of these 1.7 million are considered to be hard to treat or unfillable which means the loft would be hard/costly to insulate or could not be insulated – this can occur in properties with a flat roof or in properties where the roof has a very shallow pitch which makes the loft space inaccessible.

Around 1 per cent of properties with a loft have no insulation (0 mm); the range for this estimate is 0.6 to 2.0 per cent of properties with a loft. More details on this are provided in Appendix B.

Table 4: Loft insulation, April 2013 (Thousands)

Insulation type	Insulated	Uncertainty*	Remaining potential**	Properties with a loft
Loft insulation	16,160	90	7,440	23,690
	68%	0.4%	31%	100%

* Properties which may or may not have loft insulation.
** Not all remaining potential properties could be insulated and some which could be insulated would not be cost effective to insulate, due to lofts either being hard to treat or unfillable.

the report) and excludes some cavities which assessors would not be able to identify as hard to treat, such as dwellings with high exposure to wind and rain.

Solid wall insulation

Table 5 below gives a breakdown of the remaining potential to insulate solid wall properties in the Great Britain housing stock. It is estimated that at the start of April 2013 there were 7.7 million uninsulated solid walls (96 per cent of homes with solid walls). Government schemes to date (prior to Green Deal/ECO) have focused on insulating homes with cavity walls due to the costs involved with insulating solid wall properties, however the launch of the Green Deal and ECO in January 2013 should mean that the focus now switches to harder or more expensive to treat properties, including solid wall properties. Of the remaining potential it may not be possible to insulate all uninsulated solid wall properties, it is likely that some of these will be too costly to treat or be within conservation areas and will therefore never be insulated, work is planned to assess the extent of this issue.

Table 5: Solid wall insulation, April 2013 (Thousands)

Insulation type	Insulated	Uncertainty*	Remaining potential**	Solid wall properties
Solid wall insulation	205	126	7,660	7,990
	3%	2%	96%	100%

* Properties which may or may not have solid wall insulation.

** Not all remaining potential properties would be insulated as it is likely that some of these would be too costly to treat or be within conservation areas.

Appendix A – Explanation of measures

This appendix outlines the types of insulation which are included in these estimates of home insulation levels in Great Britain.

Cavity wall insulation

Many homes built in Great Britain have external walls made up of an inner and outer wall with a small cavity in between. These have been typical since the 1930s, but some older properties will also have them. Cavity walls were used initially because they were cheaper (as the inner leaf could use non-decorative brick) and had a greater resistance to moisture moving from outside to inside. The presence of a cavity also improves the thermal performance of the wall, especially if the cavity is insulated. Since the mid 1980s, homes have been increasingly built with pre-insulated cavity walls, though the type of blockwork used for the inner leaf has also contributed to the improved thermal performance required by Building Regulations.

Loft insulation

Some loft insulation has been installed in new homes since 1965. Current building regulations for new homes require a roof to have a thermal transmittance (U-value) of at least as low as 0.13 W/m².K, which would typically be achieved with 300mm of loft insulation. There is a strong 'diminishing returns' effect with savings from increasing the depth of loft insulation, so the first inch gives about half the savings from full insulation. Therefore, a threshold of 125mm is used in these statistics since homes with less than this would expect to see significant improvements in energy efficiency from a top-up.

Solid wall insulation

It is possible to improve the thermal performance of solid walls by adding insulation either internally or externally. There is a wide variety of technical solutions that can be used to insulate either the internal or external face of the wall. Current building regulations require a target U-value of 0.35 W/m².K to be reached if this modification to the wall is made. It is likely that installations of solid wall insulation before 2002 (i.e. before the first phase of the Energy Efficiency Commitment) may not achieve this level of thermal performance, so these are recorded separately in the statistics.

Appendix B – Depth of loft insulation

In this publication DECC defines a dwelling as having loft insulation if it has at least 125mm of insulation and properties with less than 125mm of insulation as "uninsulated". However, there is also interest in how many properties still have no insulation at all (i.e. 0mm). DECC has made an assessment of this based on limited information from housing survey data and assumptions about which lofts have been insulated through Government schemes.

Loft depth information from the English Housing Survey for 2008 to 2010 was used as a starting point. This was combined with known delivery through Government schemes to produce estimates for Great Britain for 2008 to 2010. Information on lofts insulated through Government schemes was then used to estimate the number of properties with 0mm of loft insulation for 2011 to 2013.

Given the limited evidence available, two methods have been used for 2011 to 2013 estimates; to provide an indication of the upper and lower bound for the range the actual figure lies within. The first method (upper bound) assumes that loft insulation delivered through Government schemes has been equally distributed in proportion to the number of properties in each loft depth category below 125mm. The second method (lower bound) makes different assumption for different Government schemes. Anecdotal evidence from DECC's interim CERT evaluation[14] and the Dead CERT report published by the Association for the Conservation of Energy[15] suggests that more professional loft insulation has been installed in households which previously had less than 60mm of loft insulation and more DIY loft insulation has been installed in household with previously had insulation of 60mm or more[16]. It has also been assumed that insulation through CESP has been installed equally across the dwelling stock and for Warm Front, a break down for insulation going into properties which previously had less than 60mm and greater than 60mm is provided.

These two methods result in a range of 0.6 to 2.0 per cent of properties with a loft having 0mm of insulation in April 2013. Given the uncertainty around this estimate, a point estimate of around one per cent is the best estimate of the number of lofts with no insulation at the start of April 2013. Table B1 shows the estimates of the percentage of properties with a loft which have no insulation for April 2008 to April 2013.

[14] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48209/3340-evaluation-synthesis-of-energy-supplier-obligation.pdf

[15] http://www.ukace.org/wp-content/uploads/2012/01/ACE-Research-2012-01-Dead-CERT-full-report.pdf

[16] In line with the value given in the ACE report, the lower bound assumes that 80 per cent of professional loft insulation has gone into properties which previously had less than 60mm of insulation. It is also assumed that 80 per cent of DIY loft insulation has gone into properties which previously had at least 60mm of insulation.

Table B1: Properties with no loft insulation

No insulation	Lower Bound	Upper Bound
April 2008	3%	
April 2009	3%	
April 2010	3%	
April 2011	2.4%	2.7%
April 2012	1.5%	2.4%
April 2013	0.6%	2.0%

Appendix C – UK estimates of insulation levels

This publication covers levels of home insulation in Great Britain. This annex provides estimates of level of home insulation levels in the United Kingdom (shown in Tables C1 to C3).

Information from housing surveys in Northern Ireland is not sufficient to be able to produce the UK estimate using the same methodology as the rest of Great Britain. Instead, annual dwelling stock figures for the UK, published by the department for Communities and Local Government, were used to scale up the estimates for Great Britain. For example, when looking at cavity wall insulation, the number of cavity wall properties in Great Britain was scaled up based on the number of dwellings in the UK compared to the number of dwellings in Great Britain. The number of cavity walls insulated in the UK was then based on the proportion of cavity walls insulated in Great Britain. The limited information available for Northern Ireland was used to validate these results.

Table C1: Cavity wall insulation in the United Kingdom, April 2008 to April 2013 (Thousands)

	Cavity wall insulation	Number of properties with cavity walls	Proportion of cavity wall properties with insulation
April 2008	10,310	18,840	55%
April 2009	11,060	19,060	58%
April 2010	11,820	19,240	61%
April 2011	12,430	19,400	64%
April 2012	13,110	19,540	67%
April 2013	13,740	19,670	70%

Table C2: Solid wall insulation in the United Kingdom, April 2008 to April 2013 (Thousands)

	Solid wall insulation
April 2008	67
April 2009	76
April 2010	97
April 2011	105
April 2012	136
April 2013	211

Table C3: Loft insulation in the United Kingdom, April 2008 to April 2013 (Thousands)

	Depth of loft insulation*							
	No insulation	Less than 100mm	100 to 149mm	150mm or more	Flat roof or unknown	No loft	Dwellings with a loft	125mm or more**	Number of dwellings in UK
April 2008	800	4,810	7,390	8,690	2,010	3,350	23,700	10,430	27,050
April 2009	800	4,750	6,950	9,390	1,970	3,400	23,870	11,230	27,270
April 2010	780	4,590	6,220	10,330	2,090	3,440	24,010	12,810	27,450
April 2011	..	..	..	..	..	3,470	24,140	13,920	27,610
April 2012	..	..	..	..	..	3,500	24,250	15,190	27,750
April 2013	..	..	..	..	..	3,530	24,360	16,620	27,890

*Depth of loft insulation breakdown is based on results published in the 2010 English Housing Survey, which were then scaled to be representative of the United Kingdom.

**DECC defines a dwelling as having loft insulation if it has at least 125mm of insulation. This breakdown is based on information from national housing surveys and administrative data of measures installed through Government schemes.

Further information and feedback

Any enquiries or comments in relation to this statistical release should be sent to DECC's Energy Statistics Team at the following email address:
EnergyEfficiency.Stats@decc.gsi.gov.uk

Contact telephone: 0300 068 6289

The statistician responsible for this publication is Mary Gregory.

Further information on energy statistics is available at
https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics

Next release

DECC's next release of estimates of home insulation levels in Great Britain will be published on Thursday 19th September 2013 at 9:30am, and will include estimates up to the start of July 2013.

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