Programme Area: Buildings

Project: Building Supply Chain for Mass Refurbishment of Houses

Title: Customer Engagement Exercise 2 - Appendices

Abstract:

Please note this report was produced in 2011/2012 and its contents may be out of date. This document is the appendices associated with D5.4, Customer Engagement Exercise 2.

Context:

This project looked at designing a supply chain solution to improve the energy efficiency of the vast majority of the 26 million UK homes which will still be in use by 2050.It looked to identify ways in which the refurbishment and retrofitting of existing residential properties can be accelerated by industrialising the processes of design, supply and implementation, while stimulating demand from householders by exploiting additional opportunities that come with extensive building refurbishment.The project developed a top-to-bottom process, using a method of analysing the most cost-effective package of measures suitable for a particular property, through to how these will be installed with the minimum disruption to the householder. This includes identifying the skills required of the people on the ground as well as the optimum material distribution networks to supply them with exactly what is required and when.

Customer Engagement 02

APPENDICES

Optimising Thermal Efficiency of Existing Homes

Deliverable 5.4 Project Report

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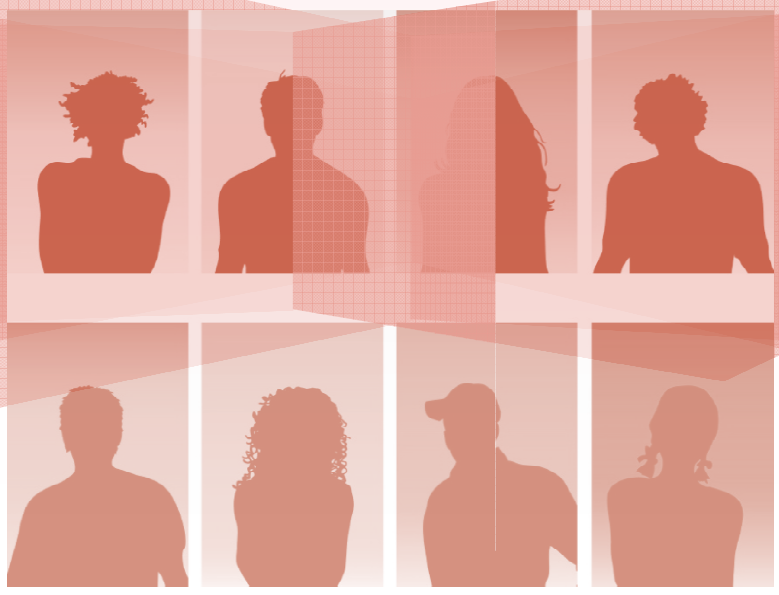

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Appendix A: Detailed Survey Methodology

A.1 - Introduction

Surveys are one of the most popular methods of conducting academic and market research. They provide a convenient way of gathering information from a target population (Walonick 1993). Surveys have been widely used as a research instrument both in the wider scope of built environment research and to specifically explore people's attitudes towards energy saving retrofit, the driver, barriers and issues surrounding them (Novikova 2011; Birr & Singer 2008).

In an aim to identify the key values, drivers and influencing factors for the future UK retrofit market, an empirical exploratory survey-based study was undertaken to provide quantitative results for Customer Value Metrics across key customer segments. The following describes the proposed methodology adopted for the implementation of the survey, presents a summary of the key results and highlights the major findings and conclusions drawn from them.

This work was carried out with the participation of various consortium partners. Each partner's contribution to this Work Package can be described as follows:

- Survey development was carried out by BRE, UCL and Peabody.
- Survey administration and preliminary analysis were conducted by BRE.
- Further in-depth analysis was undertaken by UCL.

A.2 - Methodology

Questionnaire Design

The customer survey questionnaire was based on one standard question set that aimed to collect information through the use of the following questions types described by Kirakowski (2000):

1- Factual-type questions: to collect observable information concerning the respondent, the workplace and the software used. These were multiple-choice questions where single and, on occasion, multiple responses or were allowed;

2- Opinion-type questions: to gauge opinions on the subject (e.g. energy efficiency, retrofit...etc) and/or situation (e.g. the process of refurbishment/home improvement). These included both free text and ranked order questions.

Box 1: Example of factual (left) and opinion (right) question types

A1. What type of property do you live in?

- End-terraced house
- Mid-terraced house
- Semi-detached house
- Detached house
- Bungalow
- Flat - Converted
- Flat - Purpose built high rise flat (5 or more storeys)
- Flat - Purpose built low rise flat (4 or fewer storeys)

E3. Which of the following would help you to decide what to do to improve the energy efficiency of your home? (*Mark all that apply*)

- Better information in the national and local press
- Better information on the radio and television
- Better information from my energy supplier
- Better information on the Internet
- Talking to an energy professional
- Better information from suppliers of energy saving products
- Seeing an example of a home that's been improved
- Don't know

Box 1 presents an example of each of these question types that were used in the actual interview question set. Wherever practical and possible, the wording of survey questions were based on existing key questions from similar surveys (e.g. IDEAL EPBD project survey) to allow the comparison of findings with existing sources of survey data at a later date. This will allow the investigation of sample bias / significant differences between our sample and

the responses of other samples. After the development and review of a number of preliminary draft versions of the questions, the final question set (included in Appendix B) was developed for publishing/distribution.

A.3 - Questionnaire Format and Distribution Modes

The self-administered survey was published/distributed in two formats or modes:

- **Electronic (web based) format:** An online version of the survey questionnaire was published on a web-based platform. Invitations to the survey were distributed via a covering email (Appendix D) sent to the e-mail address of potential respondents from the target population. The electronic format was accompanied by a "glossary of terms" link accessible from each survey web-page.

- **Postal (paper based) format:** A paper version of the survey questionnaire was distributed by postal address to potential respondents from the target population. The paper-based format was accompanied by both a covering letter and an attached "glossary of terms" (Appendix C).

The use of these two modes of distribution and questionnaire formats was not expected to have any significant effect on the participants' responses to the questions. This increasingly popular approach was adopted with the aim of increasing the size and breadth of the survey sample (from a broad range of market segments) within the limited budget available by maximising response while reducing costs and allowing the use of different modes of research for different audiences.

An example of this, the Ipsos Mori NSS mixed mode survey combined online, postal and telephone methods and achieved a final response rate of at least 50% (usually in excess of 60%) from the 400,000 or so student eligible each

year (ipsos-mori 2011). In addition there has been evidence to suggest that even in a mixed survey mode study (albeit a PBRN one) with both a postal and online option, postal surveys accounted for 24% of the overall responses. This finding suggests that paper-based surveys are still an important survey mode (Kroth et al. 2009).

A.4 - Respondent Sampling Methodology and Process

Survey research aims to collect data representative of a population and involves the application of procedures that enable the selection of a valid sample of respondents. This allows the generalisation of research findings within the limits of random error to the population from which it is drawn (Kotrlik et al. 2001).

For this survey, the sampling methodology was based on two waves of survey distribution. These were carried out as follows:

- ***First Wave:*** In the first wave, 20,000 surveys were sent out (10,000 electronic and 10,000 postal) with 2,000 going to each of our ten customer segments. Using Experian data on preferred communication channels, this 2,000 was split between postal and electronic (e.g. elderly segments typically received mainly postal surveys where younger segments were dominated by electronic surveys). Once the data was collected from this wave, responses were analysed to highlight underrepresentation of any segments.

- ***Second Wave:*** Where a shortage of respondents from certain segments was found, a strategy of targeting people from these segments was employed.

While it was not expected that questionnaire format would have any significant effect on the participants' responses to the questions, it was

anticipated that differences between the segments in terms of the relative response rates by both distribution method and questionnaire format would occur.

A.5 - Participation Incentives

A common method of increasing survey response is through the use of incentives (Teisl 2006). To incentivise participation, a prize draw was therefore included at the end of the survey. This included a top prize of £500, in addition to five runner-up prizes of home energy monitors. Since responses to survey questions were required to be completely anonymised, information collected for the purposes of the prize draw was stored separately from responses to maintain data protection.

A.6 - Survey Response Rates

For this survey, a relatively achievable response rate of around 5%, from a sample frame of around 20,000 was targeted. For both on-line and postal surveys over 932 forms (total responses) were submitted for both online and postal surveys. All valid responses that were usefully complete and contained relevant feedback (although not necessarily fully filled) were considered.

Respondent statistics (Table 1) show that valid responses conformed to the target sample size value of 5% and can be considered sufficient to be representative of the survey population (N) (Vaus 1996).

	Segment	Total Responses	Paper Based Responses	Web-based Responses
1	**Older Established**	176	176	0
2	**Stretched Pensioners**	153	153	0
3	**Transitional Retirees**	81	70	11
4	**Early Enterprisers**	79	22	57
5	**Urban Constrained**	72	43	29
6	**Greener Graduates**	79	31	48
7	**Unconvinced Dependants**	61	45	16
8	**Middle Grounders**	71	28	43
9	**Young Starters**	77	65	12
10	**Successful Ruralites**	83	34	49
	Total	**932**	**667**	**265**

Table 1: Respondent Statistics

A.7 - Results Validity and Limitation of Bias

Research bias is described as a systematic error (Ayyub & McCuen 2003; Weisberg et al. 1996) or deviation from the truth, which can undermine both the reliability and validity of research inferences and consequent results (Fowler 1993). In addition, when using mixed-mode surveys various sources of error (coverage, sampling, measurement and non-response) may affect results to differing extents (e.g. Groves 1989; Dillman 1999). This can affect the comparability of their outputs and consequently on the comparability of the results.

Some of the measures that were considered to minimize the impact of these issues on the validity of results include:

- To address the issues of coverage error, combining postal and online survey methods ensures that a larger portion of the population is accessible-since some segments of the population is likely to respond better to one mode than another (e.g, older groups may be more likely to use paper-based surveys while younger groups more likely to use internet, busy families with no time to post paper surveys…etc.).
- While results of various studies have shown differing outcomes on the response rates when a choice of modes of response is offered (Dillman et al. 2001; Dillman et al. 1995), research has shown that where non-respondents to one mode are re-contacted using a different mode, response rates are substantially improved (Shettle & Mooney 1999).
- To minimise measurement error, measures were applied to ensure that the design of the questionnaire was 'portable' between modes in terms of its design and format.

With the combination of these measures, it can therefore be assumed that results are free from significant error.

A.8 - Data Protection and Ethical Practice

To ensure that ethical standards towards participants in the various stages of the research were adopted, relevant guidance from the British Sociological Association's Statement of Ethical Practice (BSA 2002) was consulted in the formulation of the ethical protocol during the planning stages of the survey. The requirements of the following criteria were fulfilled in the implementation of each:

- ***Confidentiality and Participant Anonymity:*** Confidentiality in research implies that private data identifying subjects will not be reported (Kvale 2007). In accordance with relevant guidelines, the research followed the obligation to adopt appropriate measures to preserve anonymity and to store all personal contact information and data in a secure manner were fulfilled.

- ***Informed Consent:*** Ethical guidelines for social science research commonly concern the subjects' informed consent to participate, which entails informing the research subjects in appropriate detail of the nature of research, the survey procedures, as well as possible risks and benefits (Kvale 2007) that are relevant to their decision to participate (Gibbs 2007).

A.9 - Analysis Methodology

Following a review of survey questions and resulting data, the following aspects of the survey results can be highlighted:

- The survey data mainly consists of categorical variables of mostly polytomous[1] nominal/ordinal typologies.
- Since the data gathered was non-continuous, the opportunity for the application of traditional statistical techniques may be limited.

Based on these findings it is proposed that a **quantitative descriptive** approach (Miles & Huberman 1994) be predominantly used for the analysis implementation strategy.

The **quantitative descriptive approach** is used in many scientific disciplines. Here, data collected via surveys, questionnaires, or test results (and analyzed using statistical techniques) is used to describe and interpret events, conditions, or situations of the present. This allows researchers to obtain a general overview of a subject or to gain more information about a particular characteristic within a particular field of study.

[1] A polytomous variable is that where there is more than one possible outcome (Christensen 1996). A polytomous response is one that is restricted to one of a fixed set of possible values (McCullagh & Nelder 1989)

A.10 - Data Analysis Techniques

Within this framework, a number of statistical analysis techniques were applied in the interpretation of quantitative survey data. The typology of the data was considered in the selection of appropriate statistical methods, which can be described as follows (Burke Johnson & Christensen 2004):

- ***Descriptive statistics:*** the use of statistics to reveal patterns by describing, summarising, and explaining a given set of data that is comprised of numerical facts or observations. These may include frequencies, measures of central tendency, and the degree of dispersion of variables in a sample of a larger population.
- ***Inferential statistics:*** the application of procedures used to make inferences (or predictions) from sample data and generalise findings to the population. This involves some form of randomisation in the shape of either random selection or random assignment.

It was expected that part of the analysis work will involve the exploration of the existence of significant relationships (Table 2) between different variables (to highlight particular patterns or within or differences between the various consumer segments). To enable this, relevant guidelines were consulted to aid in the selection of appropriate measures of association (Mehta & Patel 2008; Mehta & Patel 2004; Vaus 1996).

Predictor variable (s)	Outcome variable	
	Categorical	**Continuous**
Categorical	Chi Square, Log linear, Logistic	t-test, ANOVA (Analysis of Varirance), Linear regression
Continuous	Logistic regression	Linear regression, Pearson correlation

Mixture of Categorical and Continuous	Logistic regression	Linear regression, Analysis of Covariance

Table 2: Statistical Tests of Association
Source: Rice 2011

Two such methods that were used for this purpose include:

- **Cross-tabulation:** Cross tabulation is the process of cross-classify the data to create a contingency table. This shows the multivariate frequency distribution of statistical variables (the *count* of the number of cases sharing a given combination of levels-*i.e.*, categories).
- ***ANOVA (ANalysis Of VAriance between groups):*** ANOVA is a statistical technique that tests if one or more covariates have an effect on the outcome variable. This is defined through the comparison of the means of each group to outline any variation (Field 2005).

When appropriate the statistical analysis tool SPSS V.17 was used to apply these methods.

Appendix B: Survey Questionnaire

Home Energy and Refurbishment Survey

Section A: Your Home

A1. What type of property do you live in?

- ☐ End-terraced house
- ☐ Mid-terraced house
- ☐ Semi-detached house
- ☐ Detached house
- ☐ Bungalow
- ☐ Flat - converted flat
- ☐ Flat - Purpose built high rise flat (5 or more storeys)
- ☐ Flat - Purpose built low rise flat (4 or less storeys)

A2. When was your home built?

- ☐ Before 1919
- ☐ 1919-1944
- ☐ 1945-1964
- ☐ 1965-1980
- ☐ 1981-1990
- ☐ After 1990
- ☐ Don't know

A3. Does your household own or rent this accomodation?

- ☐ Owns outright
- ☐ Owns with a mortgage or loan
- ☐ Part owns and part rents (shared ownership)
- ☐ Rents from private landlord
- ☐ Rents from housing association
- ☐ Rents from local authority
- ☐ Lives here rent free
- ☐ Other

A4. What is the size of your home?

Number of bedrooms = ☐☐

Section B: How You Use Your Home

B1. What is the **main** heating system in your home?

- ☐ Central heating
- ☐ Warm air system (e.g. warm air vents)
- ☐ Electric storage heaters
- ☐ Heaters/open fires (e.g. wood or gas fires)
- ☐ Portable heaters only
- ☐ Communal heating (heats more than one home)
- ☐ Don't know
- ☐ Other

Please specify other

B2. What is the **main** fuel used to heat your home?

- ☐ Gas
- ☐ Electricity
- ☐ Oil
- ☐ Wood
- ☐ Don't know
- ☐ Other

Please specify other

B3. Generally, how do you turn your heating system on?

- ☐ I turn it on manually when I'm cold
- ☐ I have it constantly on when it is cold
- ☐ I use a timer to turn it on one or more times per day
- ☐ Other

Please specify other

B4. Approximately, how many hours a day in the winter do you heat your home?

☐☐ **Hours per day on weekdays**

☐☐ **Hours per day on weekends**

B5. How do you control the temperature of your home?

- ☐ Using a single thermostat/controller
- ☐ Using a zonal control system
- ☐ Adjusting individual heat sources (e.g. radiators)

B6. Generally, what temperature is your thermostat/heating set to?

☐☐ °C ☐ Don't know / None Applicable

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Section B: How You Use Your Home

B7. How often are you too **cold** in your home?

- ☐ Most days
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

B8. When you are too **cold** in your home, what do you do to get warmer? *(Mark all that apply)*

- ☐ Increase temperature on the heating control
- ☐ Put on more clothes
- ☐ Use additional heating device (e.g. electric heater)
- ☐ Do nothing
- ☐ Other

Please specify other

B9. How often are you too **hot** in your home?

- ☐ Most days
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

B10. When you are too **hot** in your home, what do you do to cool down? *(Mark all that apply)*

- ☐ Decrease temperature on heating control
- ☐ Take off some clothes
- ☐ Use a cooling device (e.g. electric fan)
- ☐ Open window(s)
- ☐ Do nothing
- ☐ Other

Please specify other

B11. Do you have any of the following problems in your house? *(Mark all that apply)*

- ☐ Condensation
- ☐ Damp
- ☐ Mould
- ☐ Draughts
- ☐ Pests (insects, cockroaches, mice, rats etc)
- ☐ House in need of general repairs
- ☐ None of the above
- ☐ Other

Please specify other

Section C: Your Home Energy Use

C1. How much do you think you pay for your energy?

- ☐ More than average for a house like mine
- ☐ Less than average for a house like mine
- ☐ Same as the average for a house like mine
- ☐ Don't know

C2. How do you rate your energy consumption?

- ☐ More than average for a house like mine
- ☐ Less than average for a house like mine
- ☐ Same as the average for a house like mine
- ☐ Don't know

C3. Of the following, what do you (or your household) do to save energy in the home? *(Mark all that apply)*

- ☐ Switch off unused lights
- ☐ Turn appliances off instead of using stand-by
- ☐ Wash clothes at 30°C
- ☐ Shower instead of taking a bath
- ☐ Only boil as much water as I need when using the kettle
- ☐ None of the above

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Section D: Improving Your Home

D1. Who is responsible for property improvements in your home?

	I am	Someone else in my household	Private landlord	Local Authority	Housing Association	Other *(Specify below)*
Inside	☐	☐	☐	☐	☐	☐
Outside *(e.g. exterior paint and insulation work)*	☐	☐	☐	☐	☐	☐

Please specify other ☐

D2. Have any home improvements been carried out in your current home in the **last three** years?

- ☐ Don't know
- ☐ No
- ☐ Yes → Please mark **ALL** completed home improvements
  - ☐ General decoration/building works
  - ☐ Installed new boiler/heating supply
  - ☐ Fitted double or energy efficient glazing
  - ☐ Draught-proofed windows and/or doors or improved building air tightness
  - ☐ Installed solid wall insulation
  - ☐ Installed cavity wall insulation
  - ☐ Installed loft insulation
  - ☐ Installed floor insulation
  - ☐ Installed renewable heating technologies
  - ☐ Installed renewable electricity technologies
  - ☐ Other

D3. Are there any plans to make improvements to your home within the **next three** years?

- ☐ Don't know
- ☐ No
- ☐ Yes → Please mark **ALL** completed home improvements
  - ☐ General decoration/building works
  - ☐ Install new boiler/heating supply
  - ☐ Fit double or energy efficient glazing
  - ☐ Draught-proof windows and/or doors or improved building air tightness
  - ☐ Install solid wall insulation
  - ☐ Install cavity wall insulation
  - ☐ Install loft insulation
  - ☐ Install floor insulation
  - ☐ Install renewable heating technologies
  - ☐ Install renewable electricity technologies
  - ☐ Other

Section E: Improving the Energy Efficiency of Your Home

E1. How important to you would the following reasons be for making energy efficiency improvements to your home?

To make my home more comfortable	Not at all important ☐☐☐☐☐	Very important
To increase the value of my property	Not at all important ☐☐☐☐☐	Very important
To make my home look nice	Not at all important ☐☐☐☐☐	Very important
To improve my local neighbourhood	Not at all important ☐☐☐☐☐	Very important
To make my property more energy efficient	Not at all important ☐☐☐☐☐	Very important
To make other family members happy	Not at all important ☐☐☐☐☐	Very important
To meet changes in family circumstances	Not at all important ☐☐☐☐☐	Very important
To reduce the energy bills for my home	Not at all important ☐☐☐☐☐	Very important

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Section E: Improving the Energy Efficiency of Your Home

E2. How easy is it for you to access information on how to improve the energy efficiency of you home?

Very difficult ☐☐☐☐☐ Very easy

E3. Which of the following would help you decided what to do to improve the energy efficiency of your home? (Mark all that apply)

- ☐ Better information in the national and local press
- ☐ Better information on the radio and television
- ☐ Better information from my energy supplier
- ☐ Better information on the Internet
- ☐ Talking to an energy professionals
- ☐ Better information from suppliers of energy saving products
- ☐ Seeing an example of a home that's been improved
- ☐ Don't know
- ☐ Other

Please specify other

E4. How much do you personally trust the following sources for information about energy efficiency? (Mark all that apply)

Advertisements	No trust at all ☐☐☐☐☐ Complete trust
DIY shops	No trust at all ☐☐☐☐☐ Complete trust
Other shops *(e.g. Tesco, M&S, etc)*	No trust at all ☐☐☐☐☐ Complete trust
Energy suppliers	No trust at all ☐☐☐☐☐ Complete trust
Energy-saving product/service suppliers *(e.g.Insulation companies)*	No trust at all ☐☐☐☐☐ Complete trust
Consumer advice organisations	No trust at all ☐☐☐☐☐ Complete trust
Energy advice organisations *(e.g. Energy Saving Trust)*	No trust at all ☐☐☐☐☐ Complete trust
Local trades-people	No trust at all ☐☐☐☐☐ Complete trust
The Government	No trust at all ☐☐☐☐☐ Complete trust
Local Authority/Council	No trust at all ☐☐☐☐☐ Complete trust
Housing Associations	No trust at all ☐☐☐☐☐ Complete trust
Private Landlords	No trust at all ☐☐☐☐☐ Complete trust
Family, Friends and Neighbours	No trust at all ☐☐☐☐☐ Complete trust
Your Energy Performance Certificate	No trust at all ☐☐☐☐☐ Complete trust
The Internet	No trust at all ☐☐☐☐☐ Complete trust
Media coverage *(e.g. magazine/newspaper articles, TV program)*	No trust at all ☐☐☐☐☐ Complete trust

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Section E: Improving the Energy Efficiency of Your Home... Continued

E5. What do you think a home that has been refurbished to improve its energy efficiency standards will be like compared to a regular house? *(Mark all that apply)*

Comfort	More comfortable ☐☐☐☐☐	Less comfortable	☐ Don't know
Temperature	Warmer ☐☐☐☐☐	Colder	☐ Don't know
Health	More healthy ☐☐☐☐☐	Less healthy	☐ Don't know
Energy bills	Higher ☐☐☐☐☐	Lower	☐ Don't know
Energy use	Higher ☐☐☐☐☐	Lower	☐ Don't know
Appearance	Better ☐☐☐☐☐	Worse	☐ Don't know
Property Value	Higher ☐☐☐☐☐	Lower	☐ Don't know

E6. On a scale of 1-5, please score each of the following energy efficient refurbishment measures

Would like to have *(1= Would not like, 5= Would very much like)* 1 2 3 4 5		Would save energy *(1= Saves no energy, 5= Saves a lot of energy)* 1 2 3 4 5
☐☐☐☐☐	Install floor insulation	☐☐☐☐☐
☐☐☐☐☐	Install loft insulation	☐☐☐☐☐
☐☐☐☐☐	Install cavity wall insulation	☐☐☐☐☐
☐☐☐☐☐	Install solid wall insulation	☐☐☐☐☐
☐☐☐☐☐	Insulate the water/heating pipes	☐☐☐☐☐
☐☐☐☐☐	Insulate the hot water tank	☐☐☐☐☐
☐☐☐☐☐	Fit double or energy efficient glazing	☐☐☐☐☐
☐☐☐☐☐	Draught-proof windows and/or doors	☐☐☐☐☐

E7. If your household was planning to carry out any energy efficient refurbishments to your home, how likely would you be to select each of the following groups/organisations to do the works?

Energy suppliers	Very unlikely ☐☐☐☐☐	Very likely	
Housing Association	Very unlikely ☐☐☐☐☐	Very likely	
Local Authority	Very unlikely ☐☐☐☐☐	Very likely	
Large contractor/building company	Very unlikely ☐☐☐☐☐	Very likely	
Local trades-people	Very unlikely ☐☐☐☐☐	Very likely	
High street stores *(e.g. Tesco, M&S, etc)*	Very unlikely ☐☐☐☐☐	Very likely	
Large DIY stores	Very unlikely ☐☐☐☐☐	Very likely	

Other (please specify) ☐

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Section E: Improving the Energy Efficiency of Your Home... Continued

E8. If any energy efficiency refurbishment works were to be carried out in your home, **when** would the best / worst times be for these works to take place?

Moving into a new house	Worst time ☐☐☐☐☐	Best time
Planning to sell current home	Worst time ☐☐☐☐☐	Best time
Fitting of new kitchen/bathroom	Worst time ☐☐☐☐☐	Best time
Adding an extension	Worst time ☐☐☐☐☐	Best time
Replacing heating system	Worst time ☐☐☐☐☐	Best time
Electrical rewiring	Worst time ☐☐☐☐☐	Best time
Roof replacement	Worst time ☐☐☐☐☐	Best time
Re-decoration	Worst time ☐☐☐☐☐	Best time
Retirement	Worst time ☐☐☐☐☐	Best time
Changes in family circumstances *(e.g. new baby, children moving out etc)*	Worst time ☐☐☐☐☐	Best time

E9. If you were planning to carry out any energy efficient refurbishment, how important would the following things be in your decision to do the work?

Whether I can afford to make improvements	Not at all important ☐☐☐☐☐	Very important
Whether I can get a grant or loan	Not at all important ☐☐☐☐☐	Very important
The amount of grant money available	Not at all important ☐☐☐☐☐	Very important
The time and effort needed to arrange grants and loans	Not at all important ☐☐☐☐☐	Very important
Payback period	Not at all important ☐☐☐☐☐	Very important
Whether I can get council tax or stamp duty reduction	Not at all important ☐☐☐☐☐	Very important
The time and effort needed to get the work done	Not at all important ☐☐☐☐☐	Very important
The hassle and inconvenience of works	Not at all important ☐☐☐☐☐	Very important
The physical mess associated with home improvements	Not at all important ☐☐☐☐☐	Very important
The changes to your daily routine while home improvements take place	Not at all important ☐☐☐☐☐	Very important
Time and effort required to find reliable trades people	Not at all important ☐☐☐☐☐	Very important
The time needed to find out about energy efficiency measures	Not at all important ☐☐☐☐☐	Very important
The ability to choose which home improvements you wanted	Not at all important ☐☐☐☐☐	Very important
Changing original features/appearance of home	Not at all important ☐☐☐☐☐	Very important
Reduction in interior space	Not at all important ☐☐☐☐☐	Very important

Section F: About You and Your Household

F1. Are you the bill payer?
- ☐ Yes
- ☐ No

F2. What is your gender?
- ☐ Male
- ☐ Female

F3. What is your age?
- ☐ Under 20
- ☐ 20-24
- ☐ 25-29
- ☐ 30-34
- ☐ 35-39
- ☐ 40-44
- ☐ 45-49
- ☐ 50-54
- ☐ 55-59
- ☐ 60-64
- ☐ 65-69
- ☐ 70 or over

F4. Which of these descriptions applies to what you do?
(Mark all that apply)
- ☐ Employed full time
- ☐ Employed part time
- ☐ Self-employed
- ☐ Retired
- ☐ Unemployed
- ☐ Student
- ☐ Looking after the family/home/children
- ☐ Caring for a disabled or elderly person
- ☐ Temporarily sick or injured
- ☐ Long-term sick or disabled
- ☐ Other

Please specify other

F5. Which of the following describes the highest level of education in your household? If a qualification is not specified, choose the nearest equivalent
- ☐ No qualifications
- ☐ GCSE/O-level/CSE/NVQ1/NVQ2 or equivalent
- ☐ A-level/NVQ3 or equivalent
- ☐ NVQ4/NVQ5 or equivalent
- ☐ Degree/HNC/ or equivalent
- ☐ PhD/DPhil or equivalent

F6. Including yourself, how many adults (those aged 18 and over) live here as members of this household?
- ☐☐ Adults

F7. How many children (under 18s) live here as members of this household?
- ☐☐ Children aged between 0 - 6
- ☐☐ Children aged between 7 - 12
- ☐☐ Children aged between 13 - 17

F8. Does anyone in your household suffer from any of the following health issues ?
- ☐ Respiratory problems
- ☐ Circulatory problems
- ☐ Skin allergies and conditions
- ☐ Headaches and/or chronic fatigue
- ☐ None of the above

F9. Do you receive any means tested benefits (e.g. housing benefits...etc)?
- ☐ Yes
- ☐ No

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Section F: About You and Your Household... Continued

F10. Thinking of the household as a whole, which band represents the total income of the household before all deductions

	Weekly	Monthly	Annually
☐ **A**	Up to £96	Up to £416	Up to £5,000
☐ **B**	£96 up to £192	£416 up to £833	£5,000 up to £9,999
☐ **C**	£193 up to £384	£834 up to £1,666	£10,000 up to £19,999
☐ **D**	£385 up to £576	£1667 up to £2,499	£20,000 up to £29,999
☐ **E**	£577 up to £768	£2,500 up to £3,333	£30,000 up to £39,999
☐ **F**	£769 up to £961	£3,334 up to £4,166	£40,000 up to £49,999
☐ **G**	£962 up to £1,153	£4,167 up to £4,999	£50,000 up to £59,999
☐ **H**	£1,154 up to £1,345	£5,000 up to £5,833	£60,000 up to £69,999
☐ **I**	£1,346 or more	£5,834 or more	£70,000 or more

F11. Before receiving this survey, were you familiar with each any of the following terms: *(Mark all that you were familar with)*

- ☐ Climate change
- ☐ Carbon or CO2 emissions
- ☐ Retrofit
- ☐ The Green Deal
- ☐ Energy Efficiency
- ☐ Energy Performance Certificate (EPC)
- ☐ Feed-in Tariff
- ☐ Carbon Footprint

F12. Please indicate whether you agree or disagree with each of the following statements?

I feel guilty when I buy goods that are not environmentally friendly	Strongly agree ☐☐☐☐☐	Strongly disagree
There should be more information available on the environmental impacts of the products I buy	Strongly agree ☐☐☐☐☐	Strongly disagree
I would switch my custom to companies that are working to reduce climate change	Strongly agree ☐☐☐☐☐	Strongly disagree
I am concerned about the environmental effects of air travel	Strongly agree ☐☐☐☐☐	Strongly disagree
I am prepared to fly overseas less often in order to prevent environmental pollution	Strongly agree ☐☐☐☐☐	Strongly disagree
The only thing that would make me behave in a more environmentally friendly way is if it were made compulsory (i.e. illegal not to)	Strongly agree ☐☐☐☐☐	Strongly disagree
I would rather companies took the choice out of my hands by not stocking products that are damaging to the environment	Strongly agree ☐☐☐☐☐	Strongly disagree

PRIZE DRAW

If you would like to enter the prize draw please provide your name and your e-mail address or telephone number in boxes below. This information will only be used for the purposes of the prize draw and will be destroyed once a winner has been selected. To ensure your anonymity, this information will be kept separately from your responses.

Name

Email address or telephone number

Thank you for completing the questionnaire. Please return the form via the enclosed pre-paid envelope.

Draft

Appendix C: Postal Survey Covering Letter with Glossary

bre

energy technologies institute

Dear Mr(s) Surname,

RE: Home energy use and refurbishment - Survey and Prize Draw

The Energy Technologies Institute (ETI) and Building Research Establishment (BRE) need your feedback for a major, national, energy research project. Enclosed is a brief survey asking for your views on your home, refurbishments and energy efficiency works. You have been selected to receive this questionnaire because we are particularly interested in your views and people like you.

Your views are vital to ETI's **Optimising Thermal Efficiency** project, which is seeking to find ways to make it easier and more affordable to improve the energy efficiency of your home and overcome many of the current barriers to these improvements. For more information on the project, search online for "ETI Optimising Thermal Efficiency".

Tell us what you think and you could win a cheque for £500!

To thank you for taking the time to complete the questionnaire each completed survey returned in the pre paid envelope enclosed by **[DATE]** will be entered in a prize draw to win a cheque for £500. There will also be **five runner-up prizes** of home energy monitors to help you save on your energy bills.

If you would prefer to fill this survey out online please visit (enter specific web address). On the back of this letter you will find a glossary of terms used in the questionnaire. Please refer to this if any of the terms used are unfamiliar to you.

Yours sincerely

A.J. Gemmell

Andrew Gemmell Social Research Business Co ordinator
Telephone: +44 (0)1923 664352 E mail: gemmella@bre.co.uk

Instructions for completing the questionnaire

It would be helpful to us if you could bear the following points in mind when completing the survey.

1. Most questions ask you to select your answer from a number of choices. For this type of question, please mark your answer in a single box with a cross rather than a tick. E.g. ☐☒☐☐☐
2. For questions that ask you to *"Mark all that apply"* please put a cross in all relevant boxes. E.g. ☐☒☐☒☐
3. When asked to write information into the space provided, please use black ink, write clearly and use BLOCK CAPITALS. E.g. AN EXAMPLE
4. When box spaces are provided, please write a single number in each box. E.g. 2 adults

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Glossary of Key Terms

Energy Terminology:

- **Energy efficiency:** using less energy to provide the same level of energy service. For example, insulating a home allows a building to use less heating energy to achieve and maintain the same temperature. An energy efficient light bulb uses less electricity to produce the same amount of light.
- **Energy consumption:** The amount of energy consumed/used (e.g. electricity, gas, oil etc)
- **Energy efficient refurbishment/improvements:** Renovating, re-equipping, or refitting an existing house to improve its energy use.
- **Energy Performance Certificate (EPC):** An EPC is a certificate that tells you how energy efficient a property is on a scale of A-G.

Your home:

- **Thermostat:** A temperature control device in your home that regulates your heating (and in some cases cooling) equipment.
- **Condensation:** Areas on the interior surfaces where water vapour from the air comes into contact with cold surfaces and condenses.
- **Damp:** When water gets into the building's walls or floors from outside. This can either come from the ground (rising damp) or from the roof, gutters, pipes, window sills, brickwork or pointing.
- **Mould:** A growth produced especially on damp surfaces by a fungus.

Home improvement terms

- **Home improvements:** These works could include internal or external decoration, improvements to heating systems, windows, bathrooms and kitchens or structural works.
- **Renewable heating technologies:** Technologies that use energy which comes from natural resources such as sunlight, heat from the air, or heat from the ground to provide heat for your home.
- **Renewable electricity technologies:** Technologies that use energy which comes from natural resources such as sunlight and wind to produce electricity for your home.
- **Cavity Wall Insulation:** Filling the gap between the inner and outer layers of external walls of a building with an insulation material to reduce heat loss.
- **Solid Wall Insulation:** Insulation material that is installed on the outer or inner walls of a building to reduce heat loss.
- **Floor insulation:** Installing insulation material under the floor to reduce heat loss
- **Zonal control system:** A system that allows the heating system to be independently controlled for different parts (zones) of the house.
- **Payback period:** The amount of time taken to break even or "repay" on an investment. This measures how long something takes to pay for itself.

Please return your completed questionnaire in the pre paid envelope enclosed

Appendix D: Email covering letter

Subject - **Home energy use and refurbishment survey**

Dear First name Surname,

We are writing to ask for your participation in an important survey we are conducting for the Energy Technologies Institute (ETI). Your household has been selected to receive this questionnaire because we are specifically interested in your views and the views of people like you. This survey has only been emailed to 10,000 carefully selected UK households.

Your views are vital to the ETI's project, which is seeking to find ways to make it easier and more affordable to improve the energy efficiency of your home and overcome many of the current barriers to these improvements. The findings will be used by the government, industry and energy companies to help households save energy and money in the coming years.

Please click on the link below to go to the survey website (or simply copy and paste the link into you Internet browser).

Survey link: www.bre.co.uk/ETI1

We appreciate your time and consideration in completing this survey. To thank you for taking the time to complete the questionnaire, each completed survey submitted by the 22/07/11 can be entered into a **prize draw to win £500**. There are also five runner-up prizes of home energy monitors to help you save on your energy bills.

Your participation in this survey is entirely voluntary and all of your responses will be anonymised. Information collected for the purposes of the prize draw will be stored separately from your other responses.

For more information on the project simply click here.

Full terms and conditions for the prize draw can be found here.

Many thanks

Appendix E: Survey Responses

A1. What type of property do you live in?

Value	Frequency	Percentage	Valid Percent
End-terraced house	102	10.9%	11.0%
Mid-terraced house	113	12.1%	12.2%
Semi-detached house	242	26.0%	26.1%
Detached house	193	20.7%	20.8%
Bungalow	156	16.7%	16.8%
Flat - Converted flat	38	4.1%	4.1%
Flat - Purpose built high rise flat (5 or more storeys)	9	1.0%	1.0%
Flat - Purpose built low rise flat (4 or fewer storeys)	73	7.8%	7.9%
Missing	6	0.6%	
Total	932	100.0%	100.0%

A2. When was your home built?

Value	Frequency	Percentage	Valid Percent
Before 1919	119	12.8%	13.0%
1919-1944	102	10.9%	11.2%
1945-1964	193	20.7%	21.2%
1965-1980	215	23.1%	23.6%
1981-1990	87	9.3%	9.5%
After 1990	114	12.2%	12.5%
Don't know	82	8.8%	9.0%
Missing	20	2.1%	
Total	932	100.0%	100.0%

A3. Does your household own or rent this accomodation?

Value	Frequency	Percentage	Valid Percent
Owns outright	355	38.1%	38.5%
Owns with a mortgage or loan	342	36.7%	37.1%
Part owns and part rents (shared ownership)	2	0.2%	0.2%
Rents from private landlord	64	6.9%	6.9%
Rents from housing association	73	7.8%	7.9%
Rents from local authority	77	8.3%	8.3%
Lives here rent free	7	0.8%	0.8%
Other	3	0.3%	0.3%
Missing	9	1.0%	
Total	932	100.0%	100.0%

A4. What is the size of your home?

	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Number of bedrooms	882	1	99	2.92	3.379

Number of bedrooms	N
1	72
2	240
3	386
4	158
5	19
6	4
Missing	53

B1. What is the main heating system in your home?

Value	Frequency	Percentage	Valid Percent
Central heating	851	91.3%	91.5%
Warm air system (e.g. warm air vents)	7	0.8%	0.8%
Electric storage heaters	45	4.8%	4.8%
Heaters/open fires (e.g. wood or gas fires)	18	1.9%	1.9%
Portable heaters only	0	0.0%	0.0%
Communal heating (heats more than one home)	2	0.2%	0.2%
Other	7	0.8%	0.8%
Don't know	0	0.0%	0.0%
Missing	2	0.2%	
Total	932	100.0%	100.0%

B2. What is the main fuel used to heat your home?

Value	Frequency	Percentage	Valid Percent
Gas	750	80.5%	80.6%
Electricity	89	9.5%	9.6%
Oil	77	8.3%	8.3%
Wood	0	0.0%	0.0%
Other	11	1.2%	1.2%
Don't know	3	0.3%	0.3%
Missing	2	0.2%	
Total	932	100.0%	100.0%

B3. Generally, how do you turn your heating system on?

Value	Frequency	Percentage	Valid Percent
I turn it on manually when I'm cold	279	29.9%	30.9%
I have it constantly on when it is cold	88	9.4%	9.7%
I use a timer to turn it on one or more times per day	531	57.0%	58.8%
Other	5	0.5%	0.6%
Missing	29	3.1%	
Total	932	100.0%	100.0%

B4a. Approximately, how many hours a day in the winter do you heat your home on weekdays?

	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Hours per day on weekdays	904	0	24	9.06	5.606

Number of hours	N
1	6
2	12
3	38
4	100
5	78
6	138
7	75
8	118
9	35
10	65
11	11
12	63
13	2
14	34
15	19
16	15
17	6
18	7
19	0
20	14
21	0
22	0
23	0
24	66
Missing	30

B4b. Approximately, how many hours a day in the winter do you heat your home at weekends?

	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Hours per day at weekends	879	0	24	10.54	5.321

Number of hours	N
1	2
2	7
3	17
4	52
5	41
6	78
7	48
8	141
9	37
10	120
11	12
12	112
13	2
14	51
15	32
16	29
17	9
18	9
19	0
20	13
21	0
22	0
23	0
24	66
Missing	54

B5. How do you control the temperature of your home?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Using a single thermostat/controller	639	293	68.56%	31.44%
Using a zonal control system	36	896	3.86%	96.14%
Adjusting individual heat sources (e.g. radiators)	360	572	38.63%	61.37%

B6. Generally, what temperature is your thermostat/heating set to?

	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Temperature °C	625	3	58	20.2	3.764
Don't know / Not Applicable	278				

Degreees C	N
10	2
11	0
12	2
13	0
14	1
15	25
16	18
17	17
18	97
19	46
20	183
21	93
22	58
23	18
24	17
25	30
26	2
27	1
28	1
29	0
30	14

B7. How often are you too cold in your home?

Value	Frequency	Percentage	Valid Percent
Most days	85	9.1%	9.2%
Sometimes	401	43.0%	43.5%
Rarely	337	36.2%	36.6%
Never	99	10.6%	10.7%
Missing	10	1.1%	
Total	932	100.0%	100.0%

B8. When you are too cold in your home, what do you do to get warmer?

	Frequency		Percentage	
Value	Yes	No	Yes	No
Increase temperature on the heating control	515	417	55.3%	44.7%
Put on more clothes	550	382	59.0%	41.0%
Use additional heating device (e.g. electric heater)	210	722	22.5%	77.5%
Do nothing	21	911	2.3%	97.7%
Other	51	881	5.5%	94.5%

B9. How often are you too hot in your home?

Value	Frequency	Percentage	Valid Percent
Most days	14	1.5%	1.5%
Sometimes	333	35.7%	36.2%
Rarely	448	48.1%	48.7%
Never	125	13.4%	13.6%
Missing	12	1.3%	
Total	932	100.0%	100.0%

B10. When you are too hot in your home, what do you do to cool down?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Decrease temperature on heating control	488	444	52.4%	47.6%
Take off some clothes	361	571	38.7%	61.3%
Use a cooling device (e.g. electric fan)	162	770	17.4%	82.6%
Open window(s)	569	363	61.1%	38.9%
Do nothing	21	911	2.3%	97.7%
Other	25	907	2.7%	97.3%

B11. Do you have any of the following problems in your house?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Condensation	174	758	18.7%	81.3%
Damp	108	824	11.6%	88.4%
Mould	117	815	12.6%	87.4%
Draughts	219	713	23.5%	76.5%
Pests (insects, cockroaches, mice, rats etc)	61	871	6.5%	93.5%
House in need of general repairs	97	835	10.4%	89.6%
None of the above	492	440	52.8%	47.2%
Other	16	916	1.7%	98.3%

C1. How much do you think you pay for your energy?

Value	Frequency	Percentage	Valid Percent
More than average for a house like mine	218	23.4%	23.8%
Less than average for a house like mine	120	12.9%	13.1%
Same as the average for a house like mine	438	47.0%	47.8%
Don't know	141	15.1%	15.4%
Missing	15	1.6%	
Total	932	100.0%	100.0%

C2. How do you rate your energy consumption?

Value	Frequency	Percentage	Valid

			Percent
More than average for a house like mine	178	19.1%	19.6%
Less than average for a house like mine	195	20.9%	21.4%
Same as the average for a house like mine	425	45.6%	46.7%
Don't know	112	12.0%	12.3%
Missing	22	2.4%	
Total	932	100.0%	100.0%

C3. Of the following, what do you (or your household) do to save energy in the home?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Switch off unused lights	871	61	93.5%	6.5%
Turn appliances off instead of using stand-by	644	288	69.1%	30.9%
Wash clothes at 30°C	437	495	46.9%	53.1%
Shower instead of taking a bath	669	263	71.8%	28.2%
Only boil as much water as I need when using the kettle	672	260	72.1%	27.9%
None of the above	3	929	0.3%	99.7%

D1A. Who is responsible for property improvements in your home? (Inside)

Value	Frequency	Percentage	Valid Percent
I am	641	68.8%	69.7%
Someone else in my household	88	9.4%	9.6%
Private landlord	55	5.9%	6.0%
Local authority	67	7.2%	7.3%
Housing association	62	6.7%	6.7%
Other	6	0.6%	0.7%
Missing	13	1.4%	
Total	932	100.0%	100.0%

D1B. Who is responsible for property improvements in your home? (Outside)

Value	Frequency	Percentage	Valid Percent
I am	561	60.2%	64.0%
Someone else in my household	88	9.4%	10.0%
Private landlord	58	6.2%	6.6%
Local authority	69	7.4%	7.9%
Housing association	74	7.9%	8.4%
Other	26	2.8%	3.0%
Missing	56	6.0%	

Total	932	100.0%	100.0%

D2A. Have any home improvements been carried out in your current home in the last three years?

Value	Frequency	Percentage	Valid Percent
No	208	22.3%	22.8%
Yes	680	73.0%	74.5%
Don't know	25	2.7%	2.7%
Missing	19	2.0%	
Total	932	100.0%	100.0%

D2b. Please mark ALL completed home improvements

Value	Frequency		Percentage	
	Yes	No	Yes	No
General decoration/building works	469	211	69.0%	31.0%
Installed new boiler/heating supply	244	436	35.9%	64.1%
Fitted double or energy efficient glazing	170	510	25.0%	75.0%
Draught-proofed windows and/or doors	83	597	12.2%	87.8%
Installed solid wall insulation	44	636	6.5%	93.5%
Installed cavity wall insulation	159	521	23.4%	76.6%
Installed loft insulation	267	413	39.3%	60.7%
Installed floor insulation	20	660	2.9%	97.1%
Installed renewable heating technologies	22	658	3.2%	96.8%
Installed renewable electricity technologies	23	657	3.4%	96.6%
Other	49	631	7.2%	92.8%

D3A. Are there any plans to make improvements to your home within the next three years?

Value	Frequency	Percentage	Valid Percent
No	298	32.0%	32.9%
Yes	366	39.3%	40.4%
Don't know	241	25.9%	26.6%
Missing	27	2.9%	
Total	932	100.0%	100.0%

D3b. Please mark ALL planned home improvements

Value	Frequency		Percentage	
	Yes	No	Yes	No
General decoration/building works	252	114	68.9%	31.1%
Installed new boiler/heating supply	62	304	16.9%	83.1%
Fitted double or energy efficient glazing	45	321	12.3%	87.7%
Draught-proofed windows and/or doors	43	323	11.7%	88.3%
Installed solid wall insulation	11	355	3.0%	97.0%
Installed cavity wall insulation	25	341	6.8%	93.2%
Installed loft insulation	48	318	13.1%	86.9%
Installed floor insulation	12	354	3.3%	96.7%
Installed renewable heating technologies	12	354	3.3%	96.7%

Installed renewable electricity technologies	25	341	6.8%	93.2%
Other	41	325	11.2%	88.8%

E1. How important to you would the following reasons be for making energy efficiency improvements to your home?

	Descriptive Statistics				
1 Not at all important - 5 very important	N	Min	Max	Mean	Std Dev
To make my home more comfortable	885	1	5	4.31	1.007
To increase the value of my property	827	1	5	3.52	1.430
To make my home look nice	829	1	5	3.50	1.337
To improve my local neighbourhood	798	1	5	3.05	1.330
To make my property more energy efficient	870	1	5	4.49	0.846
To make other family members happy	787	1	5	3.42	1.384
To meet changes in family circumstances	769	1	5	3.14	1.410
To reduce the energy bills for my home	897	1	5	4.69	0.697

E1A. To make my home more comfortable

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	25	2.7%	2.8%
2	31	3.3%	3.5%
3	111	11.9%	12.5%
4	198	21.2%	22.4%
5 - Very important	520	55.8%	58.8%
Missing	47	5.0%	
Total	932	100.0%	100.0%

E1B. To increase the value of my property

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	131	14.1%	15.8%
2	62	6.7%	7.5%
3	164	17.6%	19.8%
4	184	19.7%	22.2%
5 - Very important	286	30.7%	34.6%
Missing	105	11.3%	
Total	932	100.0%	100.0%

E1C. To make my home look nice

Value	Frequency	Percentage	Valid Percent

1 - Not at all important	100	10.7%	12.1%
2	84	9.0%	10.1%
3	199	21.4%	24.0%
4	194	20.8%	23.4%
5 - Very important	252	27.0%	30.4%
Missing	103	11.1%	
Total	932	100.0%	100.0%

E1D. To improve my local neighbourhood

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	140	15.0%	17.5%
2	112	12.0%	14.0%
3	271	29.1%	34.0%
4	120	12.9%	15.0%
5 - Very important	155	16.6%	19.4%
Missing	134	14.4%	
Total	932	100.0%	100.0%

E1E. To make my property more energy efficient

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	13	1.4%	1.5%
2	15	1.6%	1.7%
3	79	8.5%	9.1%
4	185	19.8%	21.3%
5 - Very important	578	62.0%	66.4%
Missing	62	6.7%	
Total	932	100.0%	100.0%

E1F. To make other family members happy

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	122	13.1%	15.5%
2	58	6.2%	7.4%
3	206	22.1%	26.2%
4	168	18.0%	21.3%
5 - Very important	233	25.0%	29.6%
Missing	145	15.6%	
Total	932	100.0%	100.0%

E1G. To meet changes in family circumstances

Value	Frequency	Percentage	Valid Percent

1 - Not at all important	150	16.1%	19.5%
2	86	9.2%	11.2%
3	223	23.9%	29.0%
4	128	13.7%	16.6%
5 - Very important	182	19.5%	23.7%
Missing	163	17.5%	
Total	932	100.0%	100.0%

E1H. To reduce the energy bills for my home

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	10	1.1%	1.1%
2	5	0.5%	0.6%
3	46	4.9%	5.1%
4	135	14.5%	15.1%
5 - Very important	701	75.2%	78.1%
Missing	35	3.8%	
Total	932	100.0%	100.0%

E2. How easy is it for you to access information on how to improve the energy efficiency of your home?

How easy to access information	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
1 = Very difficult, 5 = Very easy	881	1	5	3.43	1.234

Value	Frequency	Percentage	Valid Percent
1 - Very difficult	85	9.1%	9.6%
2	74	7.9%	8.4%
3	329	35.3%	37.3%
4	160	17.2%	18.2%
5 - Very easy	233	25.0%	26.4%
Missing	51	5.5%	
Total	932	100.0%	100.0%

E3. Which of the following would help you to decide what to do to improve the energy efficiency of your home?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Better information in the national and local press	285	647	30.6%	69.4%
Better information on the radio and television	251	681	26.9%	73.1%
Better information from my energy supplier	477	455	51.2%	48.8%
Better information on the Internet	212	720	22.7%	77.3%
Talking to an energy professional	208	724	22.3%	77.7%
Better information from suppliers of energy saving products	346	586	37.1%	62.9%
Seeing an example of a home that's been improved	327	605	35.1%	64.9%

Don't know	123	809	13.2%	86.8%
Other	38	894	4.1%	95.9%

E4. How much do you personally trust the following sources for information about energy efficiency?

	Descriptive Statistics				
1 No trust at all - 5 Complete trust	N	Min	Max	Mean	Std Dev
Advertisements	839	1	5	2.41	0.954
DIY shops	813	1	5	2.79	0.924
Other shops (e.g. Tesco, M&S, etc)	797	1	5	2.55	0.945
Energy suppliers	848	1	5	2.85	1.095
Energy-saving product/service suppliers (e.g.Insulation companies)	827	1	5	2.88	1.069
Consumer advice organisations	823	1	5	3.63	0.979
Energy advice organisations (e.g. Energy Saving Trust)	820	1	5	3.67	0.995
Local trades people	817	1	5	2.84	0.982
The Government	818	1	5	2.83	1.146
Local Authority/Council	818	1	5	3.04	1.096
Housing Associations	733	1	5	2.84	1.080
Private Landlords	687	1	5	2.16	1.034
Family, Friends and Neighbours	794	1	5	3.65	0.958
Your Energy Performance Certificate	728	1	5	3.27	1.018
The Internet	733	1	5	2.83	0.973
Media coverage	777	1	5	2.71	0.931

E4A. Advertisements

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	170	18.2%	20.3%
2	250	26.8%	29.8%
3	343	36.8%	40.9%
4	59	6.3%	7.0%
5 - Complete trust	17	1.8%	2.0%
Missing	93	10.0%	
Total	932	100.0%	100.0%

E4B. DIY shops

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	85	9.1%	10.5%
2	173	18.6%	21.3%
3	407	43.7%	50.1%
4	125	13.4%	15.4%
5 - Complete trust	23	2.5%	2.8%
Missing	119	12.8%	
Total	932	100.0%	100.0%

E4C. Other shops (e.g. Tesco, M&S, etc)

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	133	14.3%	16.7%
2	200	21.5%	25.1%
3	374	40.1%	46.9%
4	73	7.8%	9.2%
5 - Complete trust	17	1.8%	2.1%
Missing	135	14.5%	
Total	932	100.0%	100.0%

E4D. Energy suppliers

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	116	12.4%	13.7%
2	179	19.2%	21.1%
3	323	34.7%	38.1%
4	176	18.9%	20.8%
5 - Complete trust	54	5.8%	6.4%
Missing	84	9.0%	
Total	932	100.0%	100.0%

E4E. Energy-saving product/service suppliers (e.g.Insulation companies)

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	93	10.0%	11.2%
2	187	20.1%	22.6%
3	334	35.8%	40.4%
4	152	16.3%	18.4%
5 - Complete trust	61	6.5%	7.4%
Missing	105	11.3%	
Total	932	100.0%	100.0%

E4F. Consumer advice organisations

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	36	3.9%	4.4%
2	47	5.0%	5.7%
3	246	26.4%	29.9%
4	351	37.7%	42.6%
5 - Complete trust	143	15.3%	17.4%
Missing	109	11.7%	
Total	932	100.0%	100.0%

E4G. Energy advice organisations (e.g. Energy Saving Trust)

Value	Frequency	Percentage	Valid

			Percent
1 - No trust at all	38	4.1%	4.6%
2	42	4.5%	5.1%
3	232	24.9%	28.3%
4	349	37.4%	42.6%
5 - Complete trust	159	17.1%	19.4%
Missing	112	12.0%	
Total	932	100.0%	100.0%

E4H. Local trades people

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	90	9.7%	11.0%
2	164	17.6%	20.1%
3	384	41.2%	47.0%
4	144	15.5%	17.6%
5 - Complete trust	35	3.8%	4.3%
Missing	115	12.3%	
Total	932	100.0%	100.0%

E4I. The Government

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	145	15.6%	17.7%
2	131	14.1%	16.0%
3	308	33.0%	37.7%
4	184	19.7%	22.5%
5 - Complete trust	50	5.4%	6.1%
Missing	114	12.2%	
Total	932	100.0%	100.0%

E4J. Local Authority/Council

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	96	10.3%	11.7%
2	122	13.1%	14.9%
3	321	34.4%	39.2%
4	213	22.9%	26.0%
5 - Complete trust	66	7.1%	8.1%
Missing	114	12.2%	
Total	932	100.0%	100.0%

E4K. Housing Associations

Value	Frequency	Percentage	Valid

			Percent
1 - No trust at all	105	11.3%	14.3%
2	133	14.3%	18.1%
3	316	33.9%	43.1%
4	132	14.2%	18.0%
5 - Complete trust	47	5.0%	6.4%
Missing	199	21.4%	
Total	932	100.0%	100.0%

E4L. Private Landlords

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	231	24.8%	33.6%
2	184	19.7%	26.8%
3	219	23.5%	31.9%
4	35	3.8%	5.1%
5 - Complete trust	18	1.9%	2.6%
Missing	245	26.3%	
Total	932	100.0%	100.0%

E4M. Family, Friends and Neighbours

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	20	2.1%	2.5%
2	61	6.5%	7.7%
3	251	26.9%	31.6%
4	310	33.3%	39.0%
5 - Complete trust	152	16.3%	19.1%
Missing	138	14.8%	
Total	932	100.0%	100.0%

E4N. Your Energy Performance Certificate

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	52	5.6%	7.1%
2	67	7.2%	9.2%
3	323	34.7%	44.4%
4	204	21.9%	28.0%
5 - Complete trust	82	8.8%	11.3%
Missing	204	21.9%	
Total	932	100.0%	100.0%

E4O. The Internet

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	91	9.8%	12.4%
2	123	13.2%	16.8%
3	359	38.5%	49.0%
4	138	14.8%	18.8%
5 - Complete trust	22	2.4%	3.0%
Missing	199	21.4%	
Total	932	100.0%	100.0%

E4P. Media coverage (e.g. magazine/newspaper articles, TV/radio programmes)

Value	Frequency	Percentage	Valid Percent
1 - No trust at all	102	10.9%	13.1%
2	162	17.4%	20.8%
3	391	42.0%	50.3%
4	106	11.4%	13.6%
5 - Complete trust	16	1.7%	2.1%
Missing	155	16.6%	
Total	932	100.0%	100.0%

E5. What do you think a home that has been refurbished to improve its energy efficiency standards will be like compared to a regular house?

Parameters	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Comfort	851	1	5	1.70	0.818
Temperature	861	1	5	1.74	0.859
Health	818	1	5	1.95	0.907
Energy bills	856	1	5	4.08	1.202
Energy use	849	1	5	4.06	1.170
Appearance	796	1	5	2.38	0.953
Property value	824	1	5	1.89	0.866

E5A. Comfort

Value	Frequency	Percentage	Valid Percent
1 - More comfortable	427	45.8%	50.2%
2	272	29.2%	32.0%
3	132	14.2%	15.5%
4	19	2.0%	2.2%
5 - Less comfortable	1	0.1%	0.1%
6 - Don't know	0	0.0%	
Missing	81	8.7%	
Total	932	100.0%	100.0%

E5B. Temperature

Value	Frequency	Percentage	Valid Percent
1 - Warmer	431	46.2%	50.1%
2	251	26.9%	29.2%
3	156	16.7%	18.1%
4	20	2.1%	2.3%

5 - Colder	3	0.3%	0.3%
6 - Don't know	0	0.0%	
Missing	71	7.6%	
Total	932	100.0%	100.0%

E5C. Health

Value	Frequency	Percentage	Valid Percent
1 - More healthy	317	34.0%	38.8%
2	255	27.4%	31.2%
3	219	23.5%	26.8%
4	21	2.3%	2.6%
5 - Less healthy	6	0.6%	0.7%
6 - Don't know	0	0.0%	
Missing	114	12.2%	
Total	932	100.0%	100.0%

E5D. Energy bills

Value	Frequency	Percentage	Valid Percent
1 - Higher	66	7.1%	7.7%
2	40	4.3%	4.7%
3	69	7.4%	8.1%
4	263	28.2%	30.7%
5 - Lower	418	44.8%	48.8%
6 - Don't know	0	0.0%	
Missing	76	8.2%	
Total	932	100.0%	100.0%

E5E. Energy use

Value	Frequency	Percentage	Valid Percent
1 - Higher	59	6.3%	6.9%
2	39	4.2%	4.6%
3	87	9.3%	10.2%
4	274	29.4%	32.3%
5 - Lower	390	41.8%	45.9%
6 - Don't know	0	0.0%	
Missing	83	8.9%	
Total	932	100.0%	100.0%

E5F. Appearance

Value	Frequency	Percentage	Valid Percent
1 - Better	205	22.0%	25.8%
2	133	14.3%	16.7%
3	418	44.8%	52.5%
4	29	3.1%	3.6%
5 - Worse	11	1.2%	1.4%
6 - Don't know	0	0.0%	
Missing	136	14.6%	
Total	932	100.0%	100.0%

E5G. Property value

Value	Frequency	Percentage	Valid Percent
1 - Higher	313	33.6%	38.0%
2	318	34.1%	38.6%
3	173	18.6%	21.0%
4	8	0.9%	1.0%
5 - Lower	12	1.3%	1.5%
6 - Don't know	0	0.0%	
Missing	108	11.6%	
Total	932	100.0%	100.0%

E6A. On a scale of 1-5, please score each of the following energy efficient refurbishment measures.

(If you have already carried out any of the following refurbishments, simply leave the relevant questions blank)

1 Would not like to have - 5 Would very much like to have	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Install floor insulation	654	1	5	3.01	1.508
Install loft insulation	402	1	5	3.66	1.446
Install cavity wall insulation	431	1	5	3.46	1.483
Install solid wall insulation	491	1	5	3.05	1.497
Insulate the water/heating pipes	431	1	5	3.69	1.306
Insulate the hot water tank	338	1	5	3.25	1.502
Fit double or energy efficient glazing	393	1	5	3.82	1.428
Draught-proof windows and/or doors	425	1	5	3.95	1.359

E6A1. Install floor insulation

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	164	17.6%	25.1%
2	81	8.7%	12.4%
3	159	17.1%	24.3%
4	84	9.0%	12.8%
5 - Would very much like to have	166	17.8%	25.4%
Missing	278	29.8%	
Total	932	100.0%	100.0%

E6A2. Install loft insulation

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	61	6.5%	15.2%
2	18	1.9%	4.5%
3	92	9.9%	22.9%
4	58	6.2%	14.4%
5 - Would very much like to have	173	18.6%	43.0%
Missing	530	56.9%	
Total	932	100.0%	100.0%

E6A3. Install cavity wall insulation

Value	Frequency	Percentage	Valid

			Percent
1 - Would not like to have	74	7.9%	17.2%
2	38	4.1%	8.8%
3	93	10.0%	21.6%
4	67	7.2%	15.5%
5 - Would very much like to have	159	17.1%	36.9%
Missing	501	53.8%	
Total	932	100.0%	100.0%

E6A4. Install solid wall insulation

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	121	13.0%	24.6%
2	47	5.0%	9.6%
3	133	14.3%	27.1%
4	64	6.9%	13.0%
5 - Would very much like to have	126	13.5%	25.7%
Missing	441	47.3%	
Total	932	100.0%	100.0%

E6A5. Insulate the water/heating pipes

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	43	4.6%	10.0%
2	27	2.9%	6.3%
3	114	12.2%	26.5%
4	82	8.8%	19.0%
5 - Would very much like to have	165	17.7%	38.3%
Missing	501	53.8%	
Total	932	100.0%	100.0%

E6A6. Insulate the hot water tank

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	74	7.9%	21.9%
2	23	2.5%	6.8%
3	91	9.8%	26.9%
4	46	4.9%	13.6%
5 - Would very much like to have	104	11.2%	30.8%
Missing	594	63.7%	
Total	932	100.0%	100.0%

E6A7. Fit double or energy efficient glazing

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	55	5.9%	14.0%
2	15	1.6%	3.8%
3	65	7.0%	16.5%
4	67	7.2%	17.0%
5 - Would very much like to have	191	20.5%	48.6%
Missing	539	57.8%	
Total	932	100.0%	100.0%

E6A8. Draught-proof windows and/or doors

Value	Frequency	Percentage	Valid Percent
1 - Would not like to have	48	5.2%	11.3%
2	15	1.6%	3.5%
3	69	7.4%	16.2%
4	70	7.5%	16.5%
5 - Would very much like to have	223	23.9%	52.5%
Missing	507	54.4%	
Total	932	100.0%	100.0%

E6B. On a scale of 1-5, please score each of the following energy efficient refurbishment measures.
(If you have already carried out any of the following refurbishments, simply leave the relevant questions blank)

	Descriptive Statistics				
1 Saves no energy - 5 Saves a lot of energy	N	Min	Max	Mean	Std Dev
Install floor insulation	649	1	5	3.47	1.192
Install loft insulation	547	1	5	4.31	0.901
Install cavity wall insulation	540	1	5	4.12	0.956
Install solid wall insulation	538	1	5	3.84	1.095
Insulate the water/heating pipes	554	1	5	3.92	1.017
Insulate the hot water tank	493	1	5	4.05	0.982
Fit double or energy efficient glazing	547	1	5	4.36	0.884
Draught-proof windows and/or doors	563	1	5	4.31	0.905

E6B1. Install floor insulation

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	48	5.2%	7.4%
2	75	8.0%	11.6%
3	214	23.0%	33.0%
4	151	16.2%	23.3%
5 - Saves a lot of energy	161	17.3%	24.8%
Missing	283	30.4%	
Total	932	100.0%	100.0%

E6B2. Install loft insulation

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	11	1.2%	2.0%
2	9	1.0%	1.6%
3	70	7.5%	12.8%
4	166	17.8%	30.3%
5 - Saves a lot of energy	291	31.2%	53.2%
Missing	385	41.3%	
Total	932	100.0%	100.0%

E6B3. Install cavity wall insulation

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	13	1.4%	2.4%
2	18	1.9%	3.3%
3	85	9.1%	15.7%
4	197	21.1%	36.5%
5 - Saves a lot of energy	227	24.4%	42.0%
Missing	392	42.1%	
Total	932	100.0%	100.0%

E6B4. Install solid wall insulation

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	26	2.8%	4.8%
2	28	3.0%	5.2%
3	133	14.3%	24.7%
4	172	18.5%	32.0%
5 - Saves a lot of energy	179	19.2%	33.3%
Missing	394	42.3%	
Total	932	100.0%	100.0%

E6B5. Insulate the water/heating pipes

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	15	1.6%	2.7%
2	27	2.9%	4.9%
3	138	14.8%	24.9%
4	180	19.3%	32.5%
5 - Saves a lot of energy	194	20.8%	35.0%
Missing	378	40.6%	
Total	932	100.0%	100.0%

E6B6. Insulate the hot water tank

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	13	1.4%	2.6%
2	17	1.8%	3.4%
3	96	10.3%	19.5%
4	172	18.5%	34.9%
5 - Saves a lot of energy	195	20.9%	39.6%
Missing	439	47.1%	
Total	932	100.0%	100.0%

E6B7. Fit double or energy efficient glazing

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	12	1.3%	2.2%
2	6	0.6%	1.1%
3	60	6.4%	11.0%
4	163	17.5%	29.8%
5 - Saves a lot of energy	306	32.8%	55.9%
Missing	385	41.3%	
Total	932	100.0%	100.0%

E6B8. Draught-proof windows and/or doors

Value	Frequency	Percentage	Valid Percent
1 - Saves no energy	13	1.4%	2.3%
2	8	0.9%	1.4%
3	68	7.3%	12.1%
4	176	18.9%	31.3%
5 - Saves a lot of energy	298	32.0%	52.9%
Missing	369	39.6%	
Total	932	100.0%	100.0%

E7. If your household was planning to carry out any energy efficient refurbishments to your home, how likely would you be to select each of the following groups/organisations to do the works?

1 Very unlikely - 5 Very likely	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
Energy suppliers	752	1	5	2.85	1.376
Housing association	699	1	5	1.97	1.321
Local authority	743	1	5	2.37	1.413
Large contractor/building company	714	1	5	2.65	1.286
Local trades people	781	1	5	3.44	1.225
High street stores (e.g. Tesco, M&S, etc)	700	1	5	2.07	1.116
Large DIY stores	712	1	5	2.36	1.236
Other	405	1	5	2.30	1.356

E7A. Energy suppliers

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	185	19.8%	24.6%
2	111	11.9%	14.8%
3	203	21.8%	27.0%
4	141	15.1%	18.8%
5 - Very likely	112	12.0%	14.9%
Missing	180	19.3%	
Total	932	100.0%	100.0%

E7B. Housing association

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	394	42.3%	56.4%
2	94	10.1%	13.4%
3	110	11.8%	15.7%
4	39	4.2%	5.6%
5 - Very likely	62	6.7%	8.9%
Missing	233	25.0%	
Total	932	100.0%	100.0%

E7C. Local authority

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	304	32.6%	40.9%
2	116	12.4%	15.6%
3	155	16.6%	20.9%
4	77	8.3%	10.4%
5 - Very likely	91	9.8%	12.2%
Missing	189	20.3%	
Total	932	100.0%	100.0%

E7D. Large contractor/building company

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	198	21.2%	27.7%
2	106	11.4%	14.8%
3	220	23.6%	30.8%
4	130	13.9%	18.2%
5 - Very likely	60	6.4%	8.4%
Missing	218	23.4%	
Total	932	100.0%	100.0%

E7E. Local trades people

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	82	8.8%	10.5%
2	69	7.4%	8.8%
3	227	24.4%	29.1%
4	229	24.6%	29.3%
5 - Very likely	174	18.7%	22.3%
Missing	151	16.2%	
Total	932	100.0%	100.0%

E7F. High street stores (e.g. Tesco, M&S, etc)

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	295	31.7%	42.1%
2	151	16.2%	21.6%
3	184	19.7%	26.3%
4	47	5.0%	6.7%
5 - Very likely	23	2.5%	3.3%
Missing	232	24.9%	
Total	932	100.0%	100.0%

E7G. Large DIY stores

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	247	26.5%	34.7%
2	133	14.3%	18.7%
3	198	21.2%	27.8%
4	94	10.1%	13.2%
5 - Very likely	40	4.3%	5.6%
Missing	220	23.6%	

Total	932	100.0%	100.0%

E7H. Other

Value	Frequency	Percentage	Valid Percent
1 - Very unlikely	177	19.0%	43.7%
2	43	4.6%	10.6%
3	113	12.1%	27.9%
4	32	3.4%	7.9%
5 - Very likely	40	4.3%	9.9%
Missing	527	56.5%	
Total	932	100.0%	100.0%

E8. If any energy efficiency refurbishment works were to be carried out in your home, when would the best / worst times be for these works to take place?

	Descriptive Statistics				
1 Worst time - 5 best time	N	Min	Max	Mean	Std Dev
Moving into a new house	746	1	5	3.84	1.477
Planning to sell current home	708	1	5	2.59	1.413
Fitting of new kitchen/bathroom	738	1	5	3.72	1.223
Adding an extension	702	1	5	3.90	1.211
Replacing heating system	744	1	5	4.22	1.063
Electrical rewiring	722	1	5	3.95	1.152
Roof replacement	701	1	5	3.89	1.220
Redecoration	745	1	5	3.62	1.247
Retirement	705	1	5	3.16	1.320
Changes in family circumstances (e.g. new baby, children moving out etc)	642	1	5	2.57	1.277

E8A. Moving into a new house

Value	Frequency	Percentage	Valid Percent
1 - Worst time	118	12.7%	15.8%
2	30	3.2%	4.0%
3	86	9.2%	11.5%
4	135	14.5%	18.1%
5 - Best time	377	40.5%	50.5%
Missing	186	20.0%	
Total	932	100.0%	100.0%

E8B. Planning to sell current home

Value	Frequency	Percentage	Valid Percent
1 - Worst time	237	25.4%	33.5%
2	96	10.3%	13.6%

3	192	20.6%	27.1%
4	83	8.9%	11.7%
5 - Best time	100	10.7%	14.1%
Missing	224	24.0%	
Total	932	100.0%	100.0%

E8C. Fitting of new kitchen/bathroom

Value	Frequency	Percentage	Valid Percent
1 - Worst time	61	6.5%	8.3%
2	40	4.3%	5.4%
3	195	20.9%	26.4%
4	187	20.1%	25.3%
5 - Best time	255	27.4%	34.6%
Missing	194	20.8%	
Total	932	100.0%	100.0%

E8D. Adding an extension

Value	Frequency	Percentage	Valid Percent
1 - Worst time	55	5.9%	7.8%
2	28	3.0%	4.0%
3	140	15.0%	19.9%
4	191	20.5%	27.2%
5 - Best time	288	30.9%	41.0%
Missing	230	24.7%	
Total	932	100.0%	100.0%

E8E. Replacing heating system

Value	Frequency	Percentage	Valid Percent
1 - Worst time	35	3.8%	4.7%
2	13	1.4%	1.7%
3	108	11.6%	14.5%
4	189	20.3%	25.4%
5 - Best time	399	42.8%	53.6%
Missing	188	20.2%	
Total	932	100.0%	100.0%

E8F. Electrical rewiring

Value	Frequency	Percentage	Valid Percent
1 - Worst time	37	4.0%	5.1%
2	40	4.3%	5.5%
3	156	16.7%	21.6%
4	179	19.2%	24.8%
5 - Best time	310	33.3%	42.9%
Missing	210	22.5%	
Total	932	100.0%	100.0%

E8G. Roof replacement

Value	Frequency	Percentage	Valid Percent
1 - Worst time	54	5.8%	7.7%
2	29	3.1%	4.1%
3	151	16.2%	21.5%
4	170	18.2%	24.3%
5 - Best time	297	31.9%	42.4%
Missing	231	24.8%	
Total	932	100.0%	100.0%

E8H. Redecoration

Value	Frequency	Percentage	Valid Percent
1 - Worst time	65	7.0%	8.7%
2	57	6.1%	7.7%
3	213	22.9%	28.6%
4	171	18.3%	23.0%
5 - Best time	239	25.6%	32.1%
Missing	187	20.1%	
Total	932	100.0%	100.0%

E8I. Retirement

Value	Frequency	Percentage	Valid Percent
1 - Worst time	116	12.4%	16.5%
2	67	7.2%	9.5%
3	260	27.9%	36.9%
4	111	11.9%	15.7%
5 - Best time	151	16.2%	21.4%
Missing	227	24.4%	
Total	932	100.0%	100.0%

E8J. Changes in family circumstances (e.g. new baby, children moving out etc)

Value	Frequency	Percentage	Valid Percent
1 - Worst time	188	20.2%	29.3%
2	95	10.2%	14.8%
3	223	23.9%	34.7%
4	76	8.2%	11.8%
5 - Best time	60	6.4%	9.3%
Missing	290	31.1%	
Total	932	100.0%	100.0%

E9. If you were planning to carry out any energy efficient refurbishment, how important would the following things be in your decision to do the work?

	Descriptive Statistics				
1 Not at all important - 5 very important	N	Min	Max	Mean	Std Dev
Whether I can afford to make improvements	855	1	5	4.70	0.766
Whether I can get a grant or loan	819	1	5	4.09	1.200
The amount of grant money available	815	1	5	4.17	1.153
The time and effort needed to arrange grants and loans	786	1	5	3.77	1.276
Payback period	787	1	5	4.05	1.209
Whether I can get council tax or stamp duty reduction	775	1	5	3.83	1.253
The time and effort needed to get the work done	808	1	5	4.00	1.152
The hassle and inconvenience of works	818	1	5	3.91	1.243
The physical mess associated with home improvements	814	1	5	3.78	1.285
The changes to your daily routine while home improvements take place	817	1	5	3.60	1.298
Time and effort required to find reliable trades people	816	1	5	4.08	1.101
The time needed to find out about energy efficiency measures	799	1	5	3.82	1.149
The ability to choose which home improvements you wanted	814	1	5	4.19	0.966
Changing original features/appearance of home	798	1	5	3.62	1.240
Reduction in interior space	798	1	5	4.02	1.155

E9A. Whether I can afford to make improvements

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	18	1.9%	2.1%
2	7	0.8%	0.8%
3	32	3.4%	3.7%
4	98	10.5%	11.5%

5 - Very important	700	75.1%	81.9%
Missing	77	8.3%	
Total	932	100.0%	100.0%

E9B. Whether I can get a grant or loan

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	55	5.9%	6.7%
2	32	3.4%	3.9%
3	129	13.8%	15.8%
4	171	18.3%	20.9%
5 - Very important	432	46.4%	52.7%
Missing	113	12.1%	
Total	932	100.0%	100.0%

E9C. The amount of grant money available

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	47	5.0%	5.8%
2	24	2.6%	2.9%
3	130	13.9%	16.0%
4	158	17.0%	19.4%
5 - Very important	456	48.9%	56.0%
Missing	117	12.6%	
Total	932	100.0%	100.0%

E9D. The time and effort needed to arrange grants and loans

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	69	7.4%	8.8%
2	46	4.9%	5.9%
3	201	21.6%	25.6%
4	154	16.5%	19.6%
5 - Very important	316	33.9%	40.2%
Missing	146	15.7%	
Total	932	100.0%	100.0%

E9E. Payback period

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	58	6.2%	7.4%
2	21	2.3%	2.7%
3	145	15.6%	18.4%
4	164	17.6%	20.8%
5 - Very important	399	42.8%	50.7%
Missing	145	15.6%	
Total	932	100.0%	100.0%

E9F. Whether I can get council tax or stamp duty reduction

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	68	7.3%	8.8%
2	33	3.5%	4.3%
3	176	18.9%	22.7%
4	181	19.4%	23.4%
5 - Very important	317	34.0%	40.9%
Missing	157	16.8%	
Total	932	100.0%	100.0%

E9G. The time and effort needed to get the work done

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	40	4.3%	5.0%
2	49	5.3%	6.1%
3	150	16.1%	18.6%
4	204	21.9%	25.2%
5 - Very important	365	39.2%	45.2%
Missing	124	13.3%	
Total	932	100.0%	100.0%

E9H. The hassle and inconvenience of works

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	54	5.8%	6.6%
2	67	7.2%	8.2%
3	147	15.8%	18.0%
4	182	19.5%	22.2%
5 - Very important	368	39.5%	45.0%
Missing	114	12.2%	
Total	932	100.0%	100.0%

E9I. The physical mess associated with home improvements

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	61	6.5%	7.5%
2	80	8.6%	9.8%
3	173	18.6%	21.3%
4	161	17.3%	19.8%
5 - Very important	339	36.4%	41.6%
Missing	118	12.7%	
Total	932	100.0%	100.0%

E9J. The changes to your daily routine while home improvements take place

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	70	7.5%	8.6%
2	95	10.2%	11.6%
3	209	22.4%	25.6%
4	158	17.0%	19.3%
5 - Very important	285	30.6%	34.9%
Missing	115	12.3%	
Total	932	100.0%	100.0%

E9K. Time and effort required to find reliable trades people

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	33	3.5%	4.0%
2	36	3.9%	4.4%
3	156	16.7%	19.1%
4	195	20.9%	23.9%
5 - Very important	396	42.5%	48.5%
Missing	116	12.4%	
Total	932	100.0%	100.0%

E9L. The time needed to find out about energy efficiency measures

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	41	4.4%	5.1%
2	50	5.4%	6.3%
3	214	23.0%	26.8%
4	199	21.4%	24.9%
5 - Very important	295	31.7%	36.9%
Missing	133	14.3%	
Total	932	100.0%	100.0%

E9M. The ability to choose which home improvements you wanted

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	17	1.8%	2.1%
2	17	1.8%	2.1%
3	163	17.5%	20.0%
4	213	22.9%	26.2%
5 - Very important	404	43.3%	49.6%
Missing	118	12.7%	

Total	932	100.0%	100.0%

E9N. Changing original features/appearance of home

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	60	6.4%	7.5%
2	73	7.8%	9.1%
3	240	25.8%	30.1%
4	159	17.1%	19.9%
5 - Very important	266	28.5%	33.3%
Missing	134	14.4%	
Total	932	100.0%	100.0%

E9O. Reduction in interior space

Value	Frequency	Percentage	Valid Percent
1 - Not at all important	40	4.3%	5.0%
2	41	4.4%	5.1%
3	159	17.1%	19.9%
4	178	19.1%	22.3%
5 - Very important	380	40.8%	47.6%
Missing	134	14.4%	
Total	932	100.0%	100.0%

F1. Are you the bill payer?

Value	Frequency	Percentage	Valid Percent
Yes	840	90.1%	91.6%
No	77	8.3%	8.4%
Missing	15	1.6%	
Total	932	100.0%	100.0%

F2. What is your gender?

Value	Frequency	Percentage	Valid Percent
Male	431	46.2%	47.1%
Female	485	52.0%	52.9%
Missing	16	1.7%	
Total	932	100.0%	100.0%

F3. What is your age?

Value	Frequency	Percentage	Valid

			Percent
Under 20	6	0.6%	0.7%
20-24	11	1.2%	1.2%
25-29	46	4.9%	5.0%
30-34	69	7.4%	7.5%
35-39	66	7.1%	7.2%
40-44	97	10.4%	10.5%
45-49	84	9.0%	9.1%
50-54	76	8.2%	8.3%
55-59	67	7.2%	7.3%
60-64	100	10.7%	10.9%
65-69	83	8.9%	9.0%
70 or over	216	23.2%	23.5%
Missing	11	1.2%	
Total	932	100.0%	100.0%

F4. Which of these descriptions applies to what you do?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Employed full-time	324	608	34.8%	65.2%
Employed part-time	94	838	10.1%	89.9%
Self-employed	56	876	6.0%	94.0%
Retired	357	575	38.3%	61.7%
Unemployed	35	897	3.8%	96.2%
Student	15	917	1.6%	98.4%
Looking after the family/home/children	70	862	7.5%	92.5%
Caring for a disabled or elderly person	27	905	2.9%	97.1%
Temporarily sick or injured	12	920	1.3%	98.7%
Long-term sick or disabled	71	861	7.6%	92.4%
Other	13	919	1.4%	98.6%
Total	1074	9178	115.2%	-15.2%

F5. Which of the following describes the highest level of education in your household?
If a qualification is not specified, choose the nearest equivalent

Value	Frequency	Percentage	Valid Percent
No qualifications	165	17.7%	18.6%
NVQ1/NVQ2 or equivalent	60	6.4%	6.8%
GCSE/O-Level/CSE/NVQ3 or equivalent	180	19.3%	20.3%
A-Level/NVQ4/NVQ5 or equivalent	129	13.8%	14.6%
Degree/HNC or equivalent	311	33.4%	35.1%
PhD/DPhil or equivalent	40	4.3%	4.5%
Missing	47	5.0%	
Total	932	100.0%	100.0%

F6. Including yourself, how many adults (those aged 18 and over) live here as members of this household?

Number in household	Adults
1	291
2	499
3	77
4	20
5	6
6	0
Missing	39

F7a. How many children (0-6) live here as members of this household?

Number in household	Number of children 0-6
1	66
2	28
3	5
4	1
5	0
6	0
Missing	832

F7b. How many children (7-12) live here as members of this household?

Number in household	Number of children7-12
1	71
2	36
3	2
4	0
5	0
6	0
Missing	823

F7c. How many children (13-17) live here as members of this household?

Number in household	Number of children 13-17
1	83
2	21
3	1
4	0
5	0
6	1
Missing	826

F8. Does anyone in your household suffer from any of the following health issues?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Respiratory problems	176	756	18.9%	81.1%
Circulatory problems	109	823	11.7%	88.3%
Skin allergies and conditions	144	788	15.5%	84.5%
Headaches and/or chronic fatigue	109	823	11.7%	88.3%
None of the above	503	429	54.0%	46.0%

F9. Do you receive any means tested benefits (e.g. housing benefits...etc)?

Value	Frequency	Percentage	Valid Percent
Yes	185	19.8%	20.2%
No	729	78.2%	79.8%
Missing	18	1.9%	
Total	932	100.0%	100.0%

F10. Thinking of the household as a whole, which band represents the total annual income of the household before all deductions?

Value	Frequency	Percentage	Valid Percent
Up to £5,000	55	5.9%	6.5%
£5,000 up to £9,999	139	14.9%	16.4%
£10,000 up to £19,999	193	20.7%	22.7%
£20,000 up to £29,999	144	15.5%	16.9%
£30,000 up to £39,999	95	10.2%	11.2%
£40,000 up to £49,999	76	8.2%	8.9%
£50,000 up to £59,999	51	5.5%	6.0%
£60,000 up to £69,999	32	3.4%	3.8%
£70,000 or more	65	7.0%	7.6%
Missing	82	8.8%	
Total	932	100.0%	100.0%

F11. Before receiving this survey, were you familiar with any of the following terms?

Value	Frequency		Percentage	
	Yes	No	Yes	No
Climate change	835	97	89.6%	10.4%
Carbon or CO2 emissions	781	151	83.8%	16.2%
Retrofit	129	803	13.8%	86.2%
The Green Deal	135	797	14.5%	85.5%
Energy Efficiency	807	125	86.6%	13.4%
Energy Performance Certificate (EPC)	394	538	42.3%	57.7%
Feed-in Tariff	134	798	14.4%	85.6%
Carbon Footprint	728	204	78.1%	21.9%

F12. Please indicate whether you agree or disagree with each of the following statements

1 Strongly agree - 5 Strongly disagree	Descriptive Statistics				
	N	Min	Max	Mean	Std Dev
I feel guilty when I buy goods that are not environmentally friendly	893	1	5	2.86	1.206
There should be more information available on the environmental impacts of the products I buy	898	1	5	2.17	1.126
I would switch my custom to companies that are working to reduce climate change	893	1	5	2.55	1.129
I am concerned about the environmental effects of air travel	880	1	5	2.80	1.216
I am prepared to fly overseas less often in order to prevent environmental pollution	863	1	5	3.10	1.341
The only thing that would make me behave in a more environmentally friendly way is if it were made compulsory (i.e. illegal not to)	875	1	5	3.47	1.362
I would rather companies took the choice out of my hands by not stocking products that are damaging to the environment	899	1	5	2.41	1.313

F12A. I feel guilty when I buy goods that are not environmentally friendly

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	149	16.0%	16.7%
2	162	17.4%	18.1%
3	360	38.6%	40.3%
4	110	11.8%	12.3%
5 - Strongly disagree	112	12.0%	12.5%
Missing	39	4.2%	
Total	932	100.0%	100.0%

F12B. There should be more information available on the environmental impacts of the products I buy

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	324	34.8%	36.1%
2	244	26.2%	27.2%
3	227	24.4%	25.3%
4	63	6.8%	7.0%
5 - Strongly disagree	40	4.3%	4.5%
Missing	34	3.6%	
Total	932	100.0%	100.0%

F12C. I would switch my custom to companies that are working to reduce climate change

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	197	21.1%	22.1%
2	215	23.1%	24.1%
3	332	35.6%	37.2%
4	93	10.0%	10.4%
5 - Strongly disagree	56	6.0%	6.3%
Missing	39	4.2%	
Total	932	100.0%	100.0%

F12D. I am concerned about the environmental effects of air travel

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	170	18.2%	19.3%
2	156	16.7%	17.7%
3	322	34.5%	36.6%
4	143	15.3%	16.3%
5 - Strongly disagree	89	9.5%	10.1%
Missing	52	5.6%	
Total	932	100.0%	100.0%

F12E. I am prepared to fly overseas less often in order to prevent environmental pollution

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	156	16.7%	18.1%
2	99	10.6%	11.5%
3	278	29.8%	32.2%
4	161	17.3%	18.7%
5 - Strongly disagree	169	18.1%	19.6%
Missing	69	7.4%	
Total	932	100.0%	100.0%

F12F. The only thing that would make me behave in a more environmentally friendly way is if it were made compulsory (i.e. illegal not to)

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	114	12.2%	13.0%
2	81	8.7%	9.3%
3	243	26.1%	27.8%
4	158	17.0%	18.1%
5 - Strongly disagree	279	29.9%	31.9%
Missing	57	6.1%	
Total	932	100.0%	100.0%

F12G. I would rather companies took the choice out of my hands by not stocking products that are damaging to the environment

Value	Frequency	Percentage	Valid Percent
1 - Strongly agree	306	32.8%	34.0%
2	183	19.6%	20.4%
3	241	25.9%	26.8%
4	74	7.9%	8.2%
5 - Strongly disagree	95	10.2%	10.6%
Missing	33	3.5%	
Total	932	100.0%	100.0%

Appendix F – Focus Group Structure

ETI 5.4 Focus Groups

Guide for facilitators

FILES, DOCUMENTS AND RESOURCE CHECKLIST:

- **12 incentives** for participants in brown envelopes (provided by FGUK);
- **Incentive receipt form** (to be signed by participants upon collection of incentive at the end of the session) **VERY IMPORTANT**;
- **Powerpoint presentation** for focus group;
- **Audio and photo consent form** (to be signed at the beginning of event);
- 12 copies of **Bingo cards** document, to be completed at specific points during focus group;
- **Stationary**
  - **Flip chart** (10 pages minimum) **+ markers**
  - **12 pens for participants**
  - **White sticky labels for name badges**
  - **Coloured sticky dots**
- **Refreshments**
  - **Tea + Coffee**
  - **Water**
  - **Biscuits**
- **Signs to direct participants to the room** (if necessary)
- **Clock or watch** (for timekeeping)
- **Audio recording equipment – dictophone, iphone, etc.**

BEFORE THE GROUP STARTS

- **Prepare and collate all of the above**
- **Set up the room**
  - Lay out stationary and refreshments
  - Ensure audio-visual equipment is working correctly
  - Signpost the room if necessary
- **Confirm any housekeeping arrangements with venue staff (e.g. fire exits, locations of toilets, what to do when finished)**

AS PEOPLE ARRIVE

- **Welcome, provide them with name badge and refreshments;**
- Ask them to **sign consent form;**
- If Bingo cards have been laid out, ask participants not to fill them out yet;

MAIN FOCUS GROUP SCHEDULE

- **It is important to start on time – participants are only paid for the two hour period between 6-8pm and will expect to finish on time;**
- **START AT 6:00PM**

START	END	WHAT HAPPENS?
6:00	6:02	**INTRODUCTION (slide 2)**

- Welcome, housekeeping (evacuation procedure, locations of toilets) format of focus group – two hours with a comfort break, incentive paid at the end;
- Introductions (round the group)
  - Who are you?
  - Who do you live with?
  - What sort of home do you live in?

6:02 6:05 INTRODUCTION TO THE TOPIC (slide 3)

- Brief summary of why energy and the home is important
  - Rising fuel prices, fuel poverty, etc.
  - Aging stock in need of attention
  - Reduction of carbon emissions (domestic – 30% of UK total)

6:05 6:10 HOW DO WE MAKE HOMES MORE EFFICIENT? (slide 4)

- **Question to the group: "How is energy lost in the home?" [use flipchart to record list of ways]**
  - Prompt if necessary to ensure participants think about heat energy as well as electricity
- **Question to the group: "How can we reduce these losses?" [use flipchart to record list of ways]**
  - Prompt if necessary to look at the previously listed losses

START	END	WHAT HAPPENS?

6:10	**6:20**	**WHY WOULD YOU DO IT? (BENEFITS PERCEPTION) (slide 5)**
		
		• **Discussion** – encourage participants to discuss with each other what the key motivations to do these works might be. **[use flipchart to record a list]** Try to keep them focused on **their own values** and **not perceptions of other people's values** (e.g. not "why would the "average person" do it")
		• **Rank the benefits** – going round the room, ask each person to choose which of the items on the list are the benefits they think are most important to them, personally. [use sticky dots on the flipchart against each top benefit named by each person]
		  ○ For a list of **1-5** benefits ask respondents for their top **TWO** benefits
		  ○ For a list of **6 or more** ask for their top **THREE**

6:20	**6:30**	**WHY HAVEN'T YOU? (BARRIER PERCEPTION) (slide 6)**
		
		• **Discussion** – encourage participants to discuss with each other what their key barriers to doing these works might be. **[use flipchart to record a list]** Try to keep them focused on **their own reasons or their perceptions of their landlord's reasons** and **not perceptions of other people's reasons** (e.g. not "why hasn't the "average person" done it")
		• **Rank the barriers** – going round the room, ask each person to choose which of the items on the list are the barriers they think are most important to them, personally. [use sticky dots on the flipchart against each top barrier named by each person]
		  ○ For a list of **1-5** barriers ask respondents for their top **TWO** barriers
		  ○ For a list of **6 or more** ask for their top **THREE**

START	END	WHAT HAPPENS?
6:30	**6:35**	**QUESTION CARD 1 (works to their home) (slide 7)** • Ask participants to answer **questions 1 and 2 ONLY** on their question card (bingo card); • When they have completed their questions, if you are running ahead of schedule, encourage a brief discussion around their answers
6:35	**6:45**	**WHAT'S WRONG WITH MY HOUSE? (slide 8)** • **Discussion** – encourage participants to talk about any current issues they may have with their home. Prompt around: o Temperature o Draughtiness o Damp/mould o Expensive to run o Space o Decoration **[record list on flipchart]**
6:45	**6:50**	**COMFORT BREAK (slide 9)** • Invite participants to top up refreshments, etc. but ask to be back to start promptly after five minutes

START	END	WHAT HAPPENS?
6:50	**6:55**	**WHAT WE WOULD LIKE TO SEE (slide 10)**

- Briefly explain the three proposed stages of the retrofit we are considering
  - **STEP 1 – Survey:** Intensive fact-finding mission about the home – measure and record every detail needed for step 2 and to accurately provide quotes and estimated savings – 1-2 people; 4 hours;
  - **STEP 2 – Installation:** Major refurbishment – whole-house, insulation, draught-proofing, etc. Multiple operatives; 2 weeks;
  - **STEP 3 – Through life:** Good advice on use; simple measures, low maintenance, long-lasting and reliable;
- Costs minimised through efficient supply chain processes - reducing works to a few thousand instead of tens-of-thousands
- **IMPORTANT – Avoid asking for open feedback on this proposition immediately – explain we will work through some of the key factors of the proposition over the following hour**

6:55	**7:00**	**QUESTION CARD 2 (Installation) (slide 11)**

- Ask participants to answer **questions 3 through 6** on their question card (bingo card);

START	END	WHAT HAPPENS?

7:00	**7:15**	**DISCUSSION – INFORMATION (slide 12)**
		
		• Encourage a discussion around the three key areas of advice provision (attempt to keep to 5 mins per section)
		  ○ **Where** would you go to get information about retrofit at the very beginning? (e.g. internet? TV? Magazines? Phone? Drop-in centre?)
		  ○ **What** type of information would you need?
		  ○ **Who** would you trust to provide this information?
		[record key points on flipchart paper]

7:15	**7:35**	**DISCUSSION – INSTALLATION (slide 13)**
		
		• Encourage a discussion around the four key areas of installation (attempt to keep to 5 mins per section)
		  ○ **What would they need from the survey?** Level of detail, feedback, etc.
		  ○ **Disruption –** how much disruption would they expect or tolerate. How could we make disruption easier to bear?
		  ○ **Move in/stay elsewhere –** which would you prefer? How would this work – where would you stay? How would you feel about this? Leaving contractors working in the home.
		  ○ **Who** would you trust to do the works? Why?
		[record key points on flipchart paper]

START	END	WHAT HAPPENS?
7:35	**7:45**	**DISCUSSION – PAYMENT AND INCENTIVES (slide 14)**

- Encourage a discussion on the issue of how they might pay for this. Would they pay for it themselves? What might they expect in terms of options for payments.
- Test participants thoughts on the four carrots and four sticks noted in the presentation
  [record key points on flipchart paper]

7:45	**8:00**	**WRAP UP AND KILLER QUESTION (slide 15)**

- Wrap up and open a discussion on the overall issue – what do respondents' think are the key areas we should focus on to make this work for them?
- Ask each respondent to answer the question "What is the one key thing that would make you do this? (or ask your landlord to do it?)"
  [record answers to killer question on flipchart paper]

AT THE END OF THE FOCUS GROUP

- Thank all participants for their time and ask them to leave their question cards for collection;
- Have respondents come to you for their incentive and **have them sign the receipt form** upon receipt;
- Collect up the following and send to :
  - Receipt form and surplus incentives
  - All completed question sheets
  - Flipchart paper

- Audio/Photo consent form
- Any photographs taken (files)
- Audio recording file

KEY NOTES FOR FACILITATORS

- **REASSURE PARTICIPANTS THAT WE AREN'T HERE TO SELL RETROFIT** – We're not pushing a solution but we are interested on their honest thoughts on it;
- **Encourage them to give honest feedback –** we don't want them to tell us what they think we want to hear – we want to hear their honest opinions;
- If the discussion gets heated or multiple discussions break out, attempt to regain control of the discussion. If this becomes a repeat problem, try going round the room for individual opinions on the matter;
- Actively ask quieter members of the group for their opinions to avoid dominant views from one or two group members being the basis for our record of the focus group;

Appendix G – Example Focus Group Screener

Questions

1	AGE	How old are you?
2	TENURE	Do you own your own home or rent? If rent, do you rent from a private landlord, a social landlord or a council/local authority?
3	INCOME	Considering your total household income per year - is this more than £30,000 (before tax)?
4	GREEN EDUCATION	From the following list, please tell me which terms you are familiar with: Climate Change Carbon Footprint Energy Efficiency The Green Deal Carbon Emissions Energy Performance Certificate LOW 0 - 2 MED 3 or 4 HIGH 5 or 6
5	GREEN ACTION	Please tell me which of the following actions you routinely take part in,in the home Turn off lights when you leave the room Turn off appliances left on standby Mainly wash clothes at 30 degrees Shower instead of taking a bath Only boil as much water as I need when using the kettle LOW 0-2 MED 3 HIGH 4 or 5
6	GREEN PREMIUM PRICE	How often do you spend more money on products because they are ethically or ecologically sourced or produced? Never Rarely Sometimes Often

Appendix H – Virtual Retrofit Interview Script

Introduction

- Introductions and brief chat. Give some details about the ETI project – what is the project about? Who is involved? Why we are talking to them.
- Reassurance that there are no wrong answers.
- Seek permission for interview to be recorded.
- Explain that the interview may take approximately 90mins
- Explanation of the confidentiality arrangement:
    a. All responses will be anonymised before making their way into the final report;
    b. Personal data will be held and stored in accordance with our organisations' data protection policy;
    c. Personal data and responses will only be used for the purposes of the OTEoEH project and will not be passed on to any third parties.

Section 1- You and Your Home

1. Could you please tell me a little about your home:
    a. How long have you been living here?
    b. Is there anything you particularly like about the property?
    c. Is there anything you particularly dislike? Do you have any specific problems with the property?
    d. Have you had any work done previously on the property?
    e. Do you know the age of the house?

    f. Does the house have any draughts?
    g. Are there any damp / mould / internal air quality problems?
    h. Does your home smell?

i. Any noise issues?
j. Security?
k. Is your home dark (in terms of natural light)? Any lighting issues?

2. Is your home normally (circle answer):
   - Much too warm
   - Too warm
   - Comfortably warm
   - Comfortable
   - Comfortably cool
   - Too cool
   - Much too cool

What do you do to cool down? Explore use of fans, opening windows, portable air conditioning?

What do you do to warm up? Explore use of secondary heaters, turning up the thermostat, turning up the TRV.

Behaviour to cool down/warm up:

3. *[if mentioned any issue with temperature, humidity, draughts, damp]* Do you feel that the conditions in your home affect your health in any way? If so, how?

4. What sort of heating controls do you have in the property? Do you find them easy or difficult to use? (Examples: thermostats (whole house or rooms), boiler (temperature controls), thermostatic radiator valves (TRV), timers)

   Would you be able to show me these?

5. How often do you have the heating switched on?:

   - All of the time – at what temperature?
   - Night time only – at what temperature? What time does the heating come on & turn off?
   - Only when it feels cold – at what temperature?
   - Never

6. Do you know how much you spend on electricity and gas per month (or quarterly)? Per year?

7. Do you know what your primary heating source is?

8. Do you find your house expensive to heat?

9. Where do you think are the primary sources of heat loss in your house?

10. Have you undertaken any home improvement/energy efficiency measures on your home? If so, when? What measures were installed?

11. Do you have any loft insulation? If yes, how much?

- Do you have cavity wall insulation? If so, how much?
- Are your windows single or double glazed?
- Do you know how old your boiler is? (Plus make? model? + photo)

QUANTITATIVE CODING:

Opinion of the state of your home at present	Very positive	Generally positive	Neutral	Generally negative	Very negative
Present comfort level of your home	Excellent	Good	Neutral / tolerable	Poor	Very poor / intolerable
Opinion of the current cost to heat your home	Very low cost	Low cost	Average	Expensive	Very expensive
Understanding of heating controls		Good	Mixed	Poor	

Section 2- Home Improvements

1. Briefly, what are your views in general about being green and saving energy in the home?

2. How green do you think your general lifestyle is, on a scale of 1 to 5, 1 being not at all and 5 being very?

SCALE 1 2 3 4 5 (circle)

3. Do you believe that your use of electricity and gas in the home contributes to climate change?

4. What appliances do you think use the most electricity in your property?

5. Have you ever considered undertaking energy efficiency measures on your home? What led you to consider it?:

6. What would convince you to undertake energy efficiency measures in your home?:
   (Examples: High cost of fuel/energy bills, Availability of funding, House too cold/warm
   Environmental concerns, Improved value, Health, Other Family, Improved aesthetics)

7. What do you think are the reasons keeping you from retrofitting your home?
   (Examples: High cost of installation and materials, Inconvenience of installation, Length of installation, Unreliability of new

products/technology, Unreliability of contractors/builders, Potential damage to property, Loss of character)

8. **Irrespective of time or money**, please list the key measures you would install or changes you would make to your home:

9. Now **taking time and money into consideration**, please list the key measures you would install or changes you would make to your home:

Examples:

- Loft insulation
- Cavity-wall insulation
- Solid wall insulation
- Floor insulation
- Water/heating pipe insulation
- Hot water tank insulation
- Double glazing (or other energy efficient glazing)
- Draught-proof windows and/or doors
- Micro-heat generating technologies (e.g. GSHP, Solar thermal)
- A new, efficient, gas boiler
- Mechanical ventilation (with or without heat recovery)

10. What sort of funding or incentives would appeal to you?:
    a. A lump sum/grant that can be paid toward costs after installation

    b. A low interest loan

    c. No upfront costs- installation costs paid back through energy bills

    d. Reduced council tax for EE homes; further to this, there have been ideas of bringing in a system for banding council tax in a similar way to vehicle tax in the UK – A, B, C, D, etc. according to emissions, with A-rated cars attracting minimal tax and G-rated cars attracting the most
    e. Reduced stamp duty/rebate on stamp duty for energy efficient homes or homes that carry out retrofit within one year of purchase
    f. Low-VAT on retrofit materials
    g. Flexible Finance arrangements – could include low-interest loans, salary sacrifice schemes, Green Deal charges attached to the property, etc.
    d. Other

11. Which retrofit measures do you think would be the most inconvenient? Take the longest? Be the riskiest? Why? (i.e. insulation, boiler replacement, window replacement, renewable technology installation):

QUANTITATIVE CODING:

What is your preferred balance of disruption versus money?	**Cost**	Minimal	Lower	Balanced	Higher	Maximum
	Disruption	Maximum	Higher	Balanced	Lower	Minimum

SECTION 3– Hypothetical Installation

1. There are a variety of interventions you can undertake in retrofitting your home, each with different costs, carbon reductions, and aesthetic impacts on your house.

We have been investigating the comparative benefits and drawbacks of different retrofit packages for different homes across the UK.

Imagine now that there are three packages available for an average house like yours as part of a mass UK retrofit plan. Please give your thoughts and opinions for each one, and which Package you would be motivated to undertake yourself (costs and CO_2 savings to be included later):

Package One: Installation of wall insulation (IWI or EWI) and loft insulation

Package Two: Wall insulation (IWI or EWI) and loft insulation PLUS replace windows, doors and install an A-rated boiler

Package Three: All of the above PLUS ground floor insulation and air tightness measures (draught stripping, ventilation system)

2. There are likely to be tradeoffs between the length of time of the project and the amount of money spent. For example, phasing the work may involve smaller payments, less disruption but a larger overall cost. On the other hand, it may be cheaper to get it all finished in two weeks, but with a major amount of disruption.
   If you were to carry out retrofit work, would you prefer it to take place all in one go or in
   phases?

3. Though different measures will take different lengths of time to install, what is the maximum amount of time any retrofit project should take (weeks, months, etc.)?

4. How would you go about choosing architects, contractor, consultants, etc. for the retrofit?
   - How easy/difficult do you think it would be to find these? Where would you find this information (friends, online, Yellow Pages, etc.)

5. How would you go about choosing architects, contractor, consultants, etc. for the retrofit?
   - How easy/difficult do you think it would be to find these? Where would you find this information (friends, online, Yellow Pages, etc.)

6. How many people would you expect to have on site at any one time?

What would be the maximum number? If it were phased? If it all took place at one time (over a few weeks)?

7. What would need to be done in order to maximise your trust across the installation process- in order to trust the information you receive, the people involved, the products to be installed and the way in which the installation is done? (Accreditation, guarantees, involvement of major organisations?)

8. Would you be willing to live elsewhere during any part of the works? If you had to, where would you go (ex. family, friends, hotel, vacation, etc.)?
   - For how long would you be willing to relocate?

9. Would you expect to be given instructions/training on **how the improvements are supposed to be used** by the architect/contractor? Any ideas on how this could/should be done, or the level of detail?

10. Would you expect to be given instructions/training on **how you could change your behaviour** in the home with regards to energy use to maximise the benefits of the technologies (in terms of being more conscious of energy use- less technical and more environmental)?

11. What level of maintenance would you expect to be necessary for the upkeep of any new energy efficiency measures or installations? (DIY, maintenance people brought in as necessary, regularly scheduled checks):
    - Would you want to pay for this on an ad hoc basis? Or should it be included in the overall installation price?

12. Would you be willing to have pre and post-retrofit evaluations done on your home (to keep track of the success of work/improvements)?

13. After discussing these questions, do you have any remaining key concerns regarding this process?

QUANTITATIVE CODING:

Initial feelings of the installation process	Very positive	Positive	Neutral (both positive and negative views)	Negative	Very negative

SECTION 4– OVERALL SATISFACTION

1. If you could give the government and policymakers one key piece of advice on helping rollout retrofit for the UK, what would it be?

2. It has been suggested by some that it would be easier/better to demolish and rebuild, rather than to retrofit existing homes. What are your thoughts on this suggestion?

3. Do you think improvements would make you and the other members of the household think more about the amount of electricity and gas you are using in the house, whether through heating or appliance use?
   - If not, why not?
   - If so, what would you do differently? Why?
   - Would you use your electric appliances differently? (use examples, tumble dryers etc.)

4. Do you think that retrofit work/improvements are something that everyone would want?
   a. Yes, why?
   b. No, why not? Are there particular groups that would / wouldn't want it?

5. Do you think retrofit measures would improve your house's market value? Why or why not?

QUANTITATIVE CODING:

Occupant perceptions of desirability		Highly desirable	Neutral / unsure	Not very desirable	
Likelihood of undertaking energy efficiency improvements	Very Unlikely	Unlikely	Not sure	Likely	Very likely

SECTION 6- FINAL QUESTIONS

1. What is the employment status of those in the household? What do you / they do? Is this full / part time?

2. Please list the people who live at the property (Person 1 typically being you), including their age, gender, ethnicity (see list below) and relationship to you.

   - White British
   - White Irish
   - Other white background
   - Mixed white and Black Caribbean
   - Mixed white and Asian
   - Other mixed background
   - Asian Indian
   - Asian Pakistani
   - Asian Bangladeshi
   - Other Asian background
   - Black Caribbean
   - Black African
   - Other Black background
   - Chinese
   - Other ethnic group – please state

3. Thinking about each person, how many hours does each one spend away from your home each day? (e.g. at work, at school, shopping)

   - Person 1
   - Person 2
   - Person 3
   - Person 4
   - Person 5

4. Does anyone in the household work from the home during a typical working week?

- Yes/No
- Who?

5. We are interested in household income because people earning different amounts may have different opinions on things like energy bills and costs. Can I ask what the approximate total **annual gross income of the household** is? *(explain this question is optional but helps us a lot)*
   - £0 - £10,000
   - £10,000 - £20,000
   - £20,000 - £30,000
   - £30,000 - £40,000
   - £40,000 - £50,000
   - £50,000 - £60,000
   - £60,000+

6. Do you or anyone else in the house have qualifications from college or university? (Especially interested in any qualifications around engineering, building work etc)

7. Do you / other occupants have any health problems that are relevant to retrofit?

Close interview

- Explain when we might next be in touch (you email them with typed up response so they can check it over) and leave contact details for them. Your details and:
  - Seb Junemann – Sustainability Project Manager, Peabody Housing

- 020 7021 4410 ; seb.junemann@peabody.org.uk

❖ Thank them for their time and help.

❖ Explain that a £40 cheque will be posted to them within 28 days to say “thank you” for their time

England Pre-1919 Mid-Terrace	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	5189	4396	4116
kgCO_2 saved	1,919	2,712	2,992
Construction Cost	£16,081.34	£25,550.79	£29,692.81
Fuel Savings per year	£330.00	£466.00	£515.00
Total Fuel Cost (£/year)	£1,029.00	£893.00	£844.00

England 1919-1944 Semi-Detached	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	4956	4238	3792
kgCO_2 saved	1,823	2,541	2,987
Construction Cost	£21,592.05	£32,314.75	£36,752.37
Fuel Savings per year	£314.00	£437.00	£514.00
Total Fuel Cost (£/year)	£990.00	£867.00	£790.00

England 1945-1964 Semi-Detached (IWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	4692	4101	3689
kgCO_2 saved	585	1,176	1,588
Construction Cost	£20,863.10	£30,490.93	£34,797.21
Fuel Savings per year	£101.00	£202.00	£273.00
Total Fuel Cost (£/year)	£942.00	£841.00	£770.00

England 1945-1964 Semi-Detached (EWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	4667	4056	3604
kgCO_2 saved	610	1,221	1,673
Construction Cost	£14,988.69	£24,616.52	£28,922.80
Fuel Savings per year	£105.00	£210.00	£288.00
Total Fuel Cost (£/year)	£938.00	£833.00	£755.00

Scotland Pre- 1919 Low Rise Flat Ground Floor (IWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	5668	4858	4367
kgCO_2 saved	1,703	2,513	3,004
Construction Cost	£14,772.68	£19,391.90	£24,900.84
Fuel Savings per year	£294.00	£433.00	£517.00
Total Fuel Cost (£/year)	£1,086.00	£947.00	£863.00

Scotland Pre- 1919	Package C	Package B

Low Rise Flat Mid Floor (IWI)		
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	3744	3213
kgCO_2 saved	1,700	2,231
Construction Cost	£12,822.78	£19,038.04
Fuel Savings per year	£293.00	£384.00
Total Fuel Cost (£/year)	£755.00	£664.00

Scotland Pre- 1919 Low Rise Flat Top Floor (IWI)	**Package C**	**Package B**
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	5244	4494
kgCO_2 saved	1,873	2,623
Construction Cost	£13,509.08	£26,786.45
Fuel Savings per year	£323.00	£451.00
Total Fuel Cost (£/year)	£1,013.00	£885.00

Scotland 1919-1944 Low Rise Flat Ground Floor (EWI)	**Package C**	**Package B**
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	4948	4144
kgCO_2 saved	1,101	1,905
Construction Cost	£9,557.04	£21,681.64
Fuel Savings per year	£190.00	£327.00
Total Fuel Cost (£/year)	£947.00	£810.00

Scotland 1919-1944 Low Rise Flat Ground Floor (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	4929	4135
kgCO_2 saved	1,120	1,914
Construction Cost	£12,193.55	£24,318.16
Fuel Savings per year	£193.00	£329.00
Total Fuel Cost (£/year)	£944.00	£808.00

Scotland 1919-1944 Low Rise Flat Mid Floor (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	3227	2704
kgCO_2 saved	1,072	1,595
Construction Cost	£10,484.18	£19,953.64
Fuel Savings per year	£185.00	£274.00
Total Fuel Cost (£/year)	£651.00	£562.00

Scotland 1919-1944 Low Rise Flat Mid Floor (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	3190	2660
kgCO_2 saved	1,109	1,639
Construction Cost	£7,847.67	£17,317.13
Fuel Savings per year	£191.00	£282.00
Total Fuel Cost (£/year)	£645.00	£554.00

Scotland 1919-1944 Low	Package C	Package B

Rise Flat Top Floor (IWI)		
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	4502	3772
kgCO_2 saved	1,296	2,026
Construction Cost	£11,133.10	£20,760.93
Fuel Savings per year	£223.00	£349.00
Total Fuel Cost (£/year)	£871.00	£745.00

Scotland 1919-1944 Low Rise Flat Top Floor (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	4498	3760
kgCO_2 saved	1,300	2,038
Construction Cost	£8,496.58	£18,124.42
Fuel Savings per year	£224.00	£351.00
Total Fuel Cost (£/year)	£870.00	£743.00

Scotland Pre-1919 Detached (IWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	7749	6458	5668
kgCO_2 saved	5,320	6,611	7,401
Construction Cost	£39,481.01	£51,605.62	£59,244.69
Fuel Savings per year	£917.00	£1,138.00	£1,275.00
Total Fuel Cost (£/year)	£1,515.00	£1,294.00	£1,157.00

Scotland Pre-1919 Detached (EWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	7652	6384	5513
kgCO_2 saved	5,417	6,685	7,556
Construction Cost	£26,996.63	£39,121.23	£46,760.30
Fuel Savings per year	£933.00	£1,151.00	£1,301.00
Total Fuel Cost (£/year)	£1,499.00	£1,281.00	£1,131.00

Scotland 1980+ Detached (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	6597	5541
kgCO_2 saved	3,703	4,759
Construction Cost	£32,106.74	£40,409.65
Fuel Savings per year	£637.00	£819.00
Total Fuel Cost (£/year)	£1,300.00	£1,118.00

Scotland 1980+ Detached (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	6550	5489
kgCO_2 saved	3,750	4,811
Construction Cost	£22,321.90	£30,624.81
Fuel Savings per year	£646.00	£828.00
Total Fuel Cost (£/year)	£1,291.00	£1,109.00

Wales Pre-1919 Mid Terrace (IWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	5056	4290	3970
kgCO_2 saved	1,874	2,640	2,960
Construction Cost	£16,081.34	£28,196.30	£32,338.32
Fuel Savings per year	£322.00	£454.00	£509.00
Total Fuel Cost (£/year)	£1,006.00	£874.00	£819.00

Wales Pre-1919 Mid Terrace (EWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	5052	4277	4020
kgCO_2 saved	1,878	2,653	2,910
Construction Cost	£12,054.43	£24,169.39	£28,311.41
Fuel Savings per year	£323.00	£456.00	£500.00
Total Fuel Cost (£/year)	£1,005.00	£872.00	£828.00

Wales 1945-1964 Semi-Detached (IWI)	Package C	Package B	Package A
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	4581	4007	3601
kgCO_2 saved	553	1,127	1,533
Construction Cost	£20,863.10	£34,140.47	£38,446.75
Fuel Savings per year	£95.00	£194.00	£264.00
Total Fuel Cost (£/year)	£923.00	£824.00	£754.00

Wales 1945-1964 Semi-Detached (EWI)	**Package C**	**Package B**	**Package A**
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	4546	3954	3516
kgCO_2 saved	588	1,180	1,618
Construction Cost	£14,988.69	£28,266.06	£32,572.34
Fuel Savings per year	£101.00	£203.00	£278.00
Total Fuel Cost (£/year)	£917.00	£815.00	£740.00

Wales 1980+ Detached (IWI)	**Package C**	**Package B**	**Package A**
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	6110	5177	4495
kgCO_2 saved	2,979	3,912	4,594
Construction Cost	£32,106.74	£41,576.20	£48,267.31
Fuel Savings per year	£513.00	£673.00	£791.00
Total Fuel Cost (£/year)	£1,216.00	£1,056.00	£938.00

Wales 1980+ Detached (EWI)	**Package C**	**Package B**	**Package A**
	Wall+Loft insulation	Window, door and boiler replacement	Ground floor insulation
CO_2 emissions	6053	5099	4339
kgCO_2 saved	3,036	3,990	4,750
Construction Cost	£22,321.90	£31,791.36	£38,482.47
Fuel Savings per year	£523.00	£687.00	£818.00
Total Fuel Cost (£/year)	£1,206.00	£1,042.00	£911.00

NI pre-1919 Detached (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	9231	7576
kgCO_2 saved	8,466	10,121
Construction Cost	£39,481.00	£44,100.00
Fuel Savings per year	£1,449.00	£1,732.00
Total Fuel Cost (£/year)	£1,764.00	£1,481.00

NI pre-1919 Detached (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	9130	7478
kgCO_2 saved	8,567	10,219
Construction Cost	£26,997.00	£31,616.00
Fuel Savings per year	£1,466.00	£1,749.00
Total Fuel Cost (£/year)	£1,747.00	£1,464.00

NI 1965-1980 Detached (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	7854	6476
kgCO_2 saved	4,800	6,178
Construction Cost	£32,092.39	£41,720.23
Fuel Savings per year	£822.00	£1,057.00
Total Fuel Cost (£/year)	£1,510.00	£1,275.00

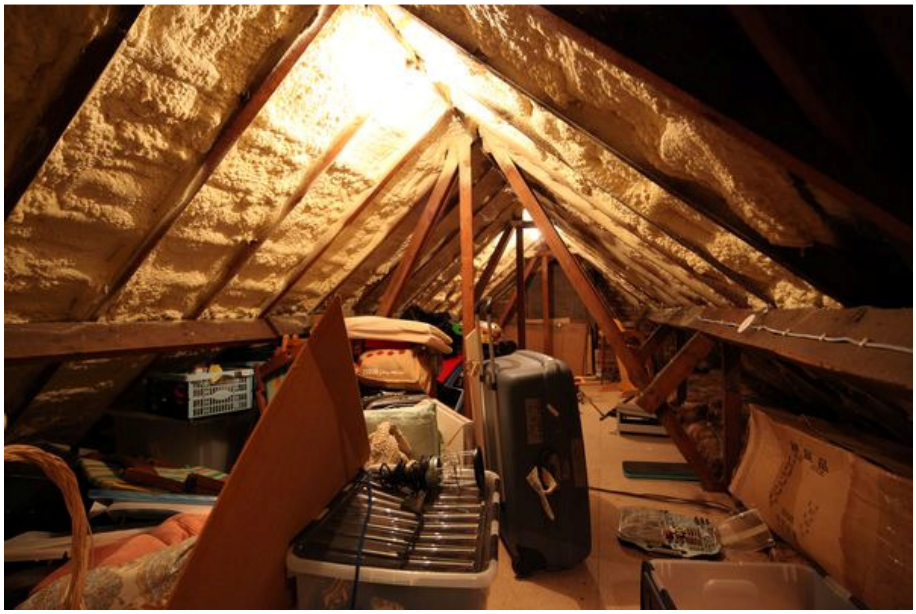
NI 1965-1980 Detached (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	7796	6396
kgCO_2 saved	4,858	6,258
Construction Cost	£22,310.30	£31,938.14
Fuel Savings per year	£832.00	£1,071.00
Total Fuel Cost (£/year)	£1,500.00	£1,261.00

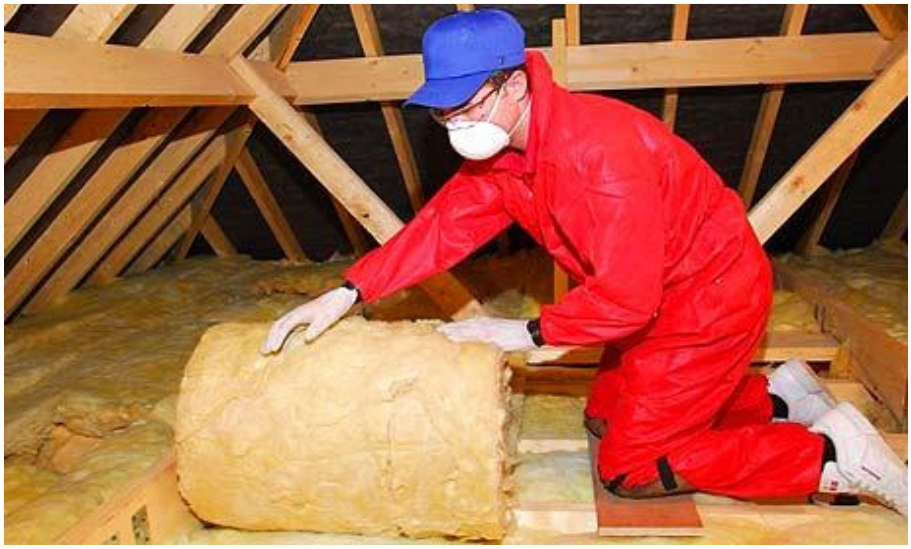
NI 1980+ Semi-Detached (IWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	5200	4505
kgCO_2 saved	1,036	1,731
Construction Cost	£20,636.56	£31,359.26
Fuel Savings per year	£177.00	£295.00
Total Fuel Cost (£/year)	£1,002.00	£884.00

NI 1980+ Semi-Detached (EWI)	Package C	Package B
	Wall+Loft insulation	Window, door and boiler replacement
CO_2 emissions	5184	4353
kgCO_2 saved	1,052	1,883
Construction Cost	£14,803.16	£25,525.86
Fuel Savings per year	£180.00	£321.00

Total Fuel Cost (£/year)	£999.00	£858.00

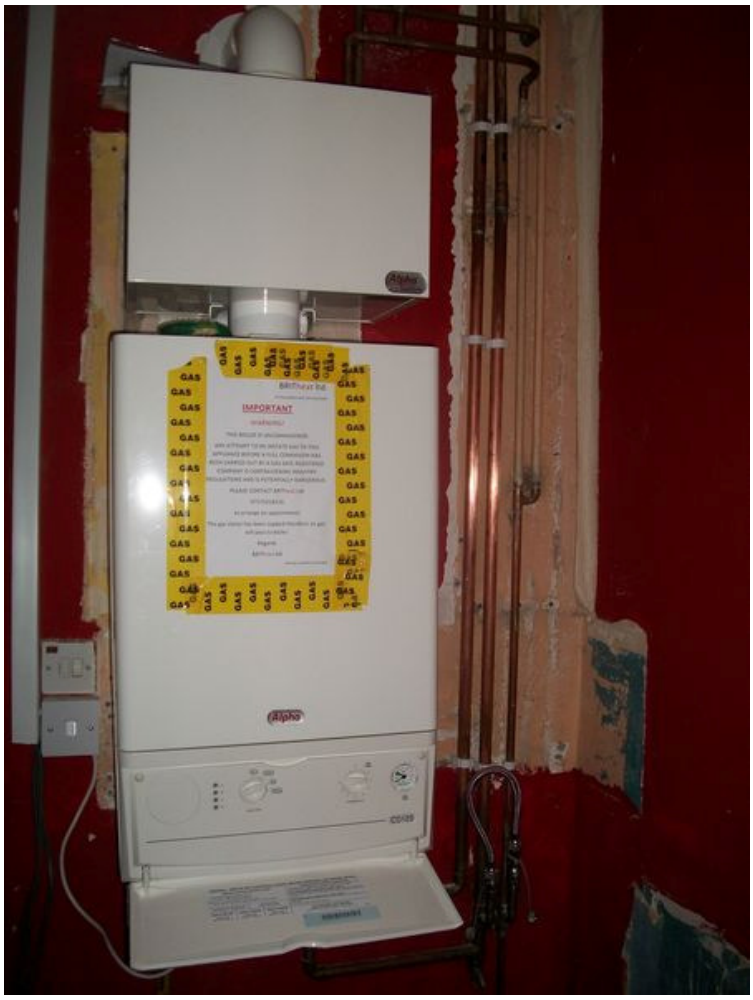
Loft insulation-



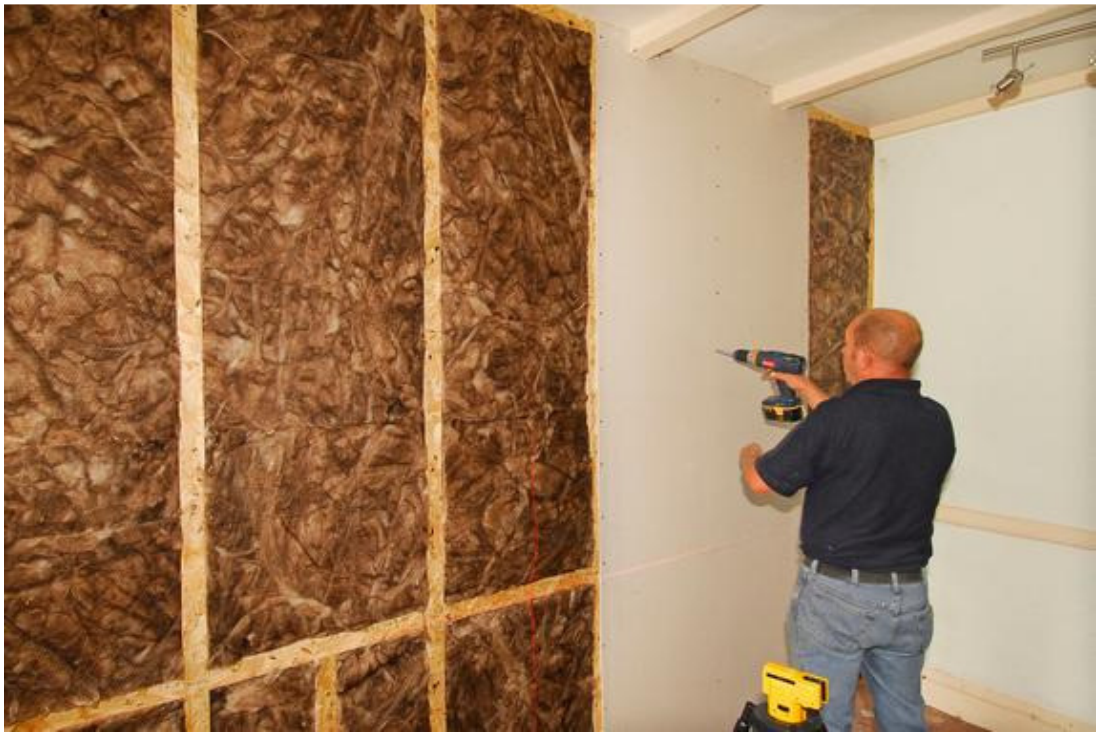


Cavity Wall insulation-

Boiler

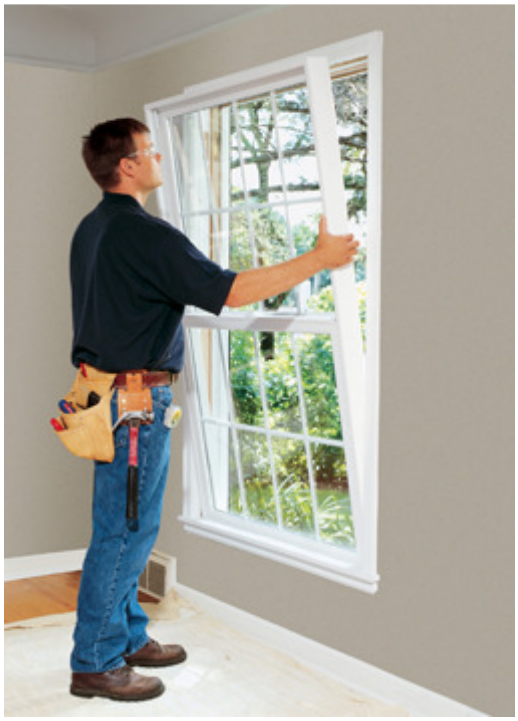


Internal Wall Insulation



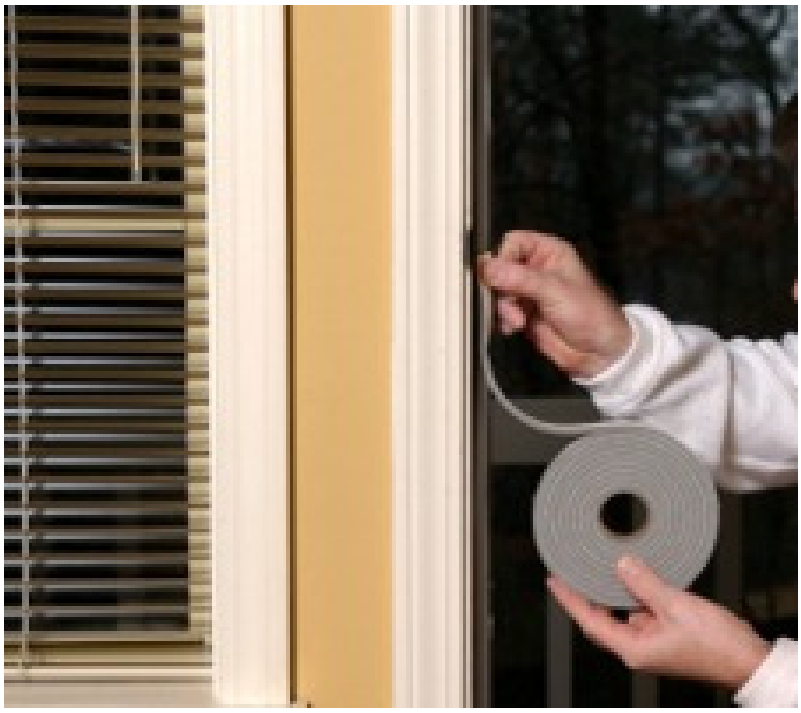
External Wall Insulation

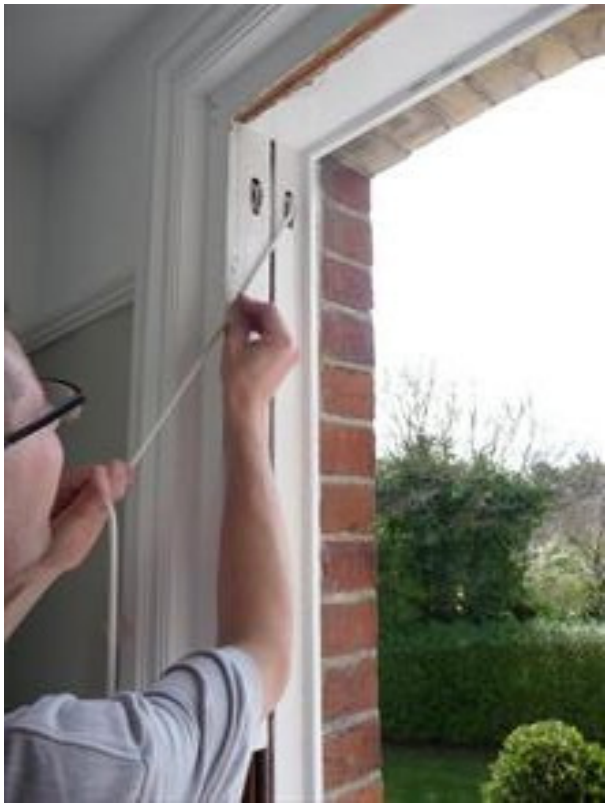
Replace windows + doors



Ground Floor Insulation

Airtightness Measures (draught stripping, ventilation systems)





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