building opportunities for business

surveying and assessing dwellings for low carbon retrofit

LOW CARBON DOMESTIC RETROFIT
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Institute for Sustainability

Technology Strategy Board
Driving Innovation
## 2 surveying and assessing dwellings for low carbon retrofit

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2.1 Introduction

In recent years, a wide variety of innovative ways of providing low carbon new homes has been demonstrated. By comparison, solutions for existing homes have generally been conventional and limited. This is because the limitations of the existing dwellings appear to constrain retrofit options, restricting creativity. However, the emerging low carbon retrofit movement is beginning to address these challenges and it is clear that a detailed consideration of each individual dwelling is the key to making large, cost-effective carbon dioxide emissions savings through retrofit.

This guide looks at the benefits of undertaking energy surveys and assessments in order to inform the process of selecting appropriate retrofit measures. The main part of the guide considers what is required to make an appropriate survey and assessment, and identifies key considerations when undertaking these activities. Business opportunities are identified, with their associated benefits and risks.

Longer term retrofit funding schemes such as the Government’s Green Deal (see Guide A) are beginning to emerge. However, the tension between long-term goals and short-term priorities remains a barrier to major retrofit and the assessment process described in this guide must take both into account.

A domestic retrofit strategy should identify the best method for reducing the total carbon dioxide emissions (or fuel costs) associated with a dwelling over the medium or long term and should be consistent with broader strategies such as local and national policies. Therefore, an energy assessor should seek to provide a householder or landlord with improvement recommendations that are aligned with the long-term needs of the building and of its occupants. Diagnoses should therefore include consideration of:

- future improvement opportunities, which should not be blocked by more immediate projects
- opportunities for integrating energy measures with other building work as required (see Guide 3)
- the provision of infrastructure for future installations (e.g., installing cables for a solar PV panel when the cable routes are exposed).

Thus the technical energy analysis is only one part of the story. An energy assessment should result in a medium or long-term whole house plan that informs all participants in the project, and subsequent participants, about the best improvement options, including benefits and likely costs.

2.2 Patterns of energy use in homes

Patterns of domestic energy use are diverse and are influenced by the fabric of the dwelling, the building services (heating, hot water, ventilation and lighting) and the lifestyle of the household. The process of assessing a dwelling to determine the best course of action to improve performance must therefore take into account this wide range of factors. Energy surveys and assessment provide occupants and landlords with a basis for identifying appropriate options for low carbon retrofit and establishing improvement plans. This activity is the focus of Guide 3 but the basis of any plan must be a sound understanding of how energy is used in the existing house and of the level of change that is acceptable within that particular home to its owners and occupants.
If a low carbon improvement plan (see Guide 3) is to be established for a dwelling, the energy assessor must be able to identify the best measures for that dwelling. There is a difference between "grading" a house with an Energy Performance Certificate (EPC) and providing advice for upgrading a home. When we allocate an EPC grade to a house we are comparing its theoretical energy efficiency with an agreed benchmark, to enable prospective occupants to compare different houses. The EPC “A to G” grading is a legal requirement for any home being sold and is intended to allow the potential purchaser or tenant to judge the energy efficiency of the house. To this end, the EPC serves its purpose.

However, this approach is not sufficient for establishing a low carbon improvement plan.

The pattern of energy use in homes is complex and if we wish to evaluate the savings associated with improvement options we must first know how much energy is being used and what it is being used for. Figure 2.2 shows the breakdown of energy use by end uses in an average UK home.
Figure 2.3 shows similar breakdowns for a range of real homes, which are all houses of similar age and type, located in the same part of London. In each case the size of the pie represents the total energy use of the house and the slices of the pie show the breakdown of energy use. It is apparent that there is huge variation, not only in the amount of energy used but in what it is used for.

Figure 2.3 Relative energy use in a range of similar homes in the London Borough of Sutton. (Source, Parity Projects)
Energy use depends on:

- the characteristics of the building fabric (insulation, air tightness)
- the characteristics of the building services (efficiency and responsiveness)
- the location of the dwelling (e.g., its exposure to wind) and the local weather
- the lifestyle and behaviour of the occupants.

The behaviour of the occupants is the most important factor. Research has shown that energy use in two identical dwellings, built side by side and occupied by different families, can vary by a factor of five. A young professional couple may treat their home like a hotel, spending only a few hours there each day and eating out; but the home of a family with young children may be continuously occupied, with intensive use of heating, lights, and appliances.

Similarly, two identical houses located in different parts of the country will experience different weather and thus use different amounts of fuel for heating. The house in the colder place will use more energy.

Thus two identical houses with different occupancy patterns, located in different places, will have different energy bills and because of this the “value” of any improvement measure (measured in terms of fuel cost saving or carbon dioxide emissions reduction) will be different for each house. Any advice given must therefore consider all of the factors above, the only assumption being that every home is unique. Thus appropriate retrofit packages can be very different from one house to the next.

### Business Opportunity

Providing energy surveys, assessments and advice for householders and landlords, probably in the role of Green Deal Advisor.

### 2.3 The scope of energy assessments

Currently, the minimum energy assessment requirement for existing dwellings is the provision of an EPC whenever a dwelling is offered for sale or rental. However, from autumn 2012 the Green Deal (see Guide A) will require more detailed assessment. It seems likely that Green Deal Advisors (GDAs) will have three roles:

1. Assessment of the energy performance of the dwelling and production of an EPC before and after improvement work, in order to benchmark the energy performance of the dwelling.

2. Identification and evaluation of a package of low carbon improvement measures that will comply with the “Golden Rule” that the cost of the measures, when repaid with interest over a 25-year period, will not exceed the expected fuel cost savings arising from the improvements.

3. Provision of advice to householders and landlords about the recommended improvement measures, taking their patterns of occupancy and lifestyles into account.

The scope and detail of the chosen assessment approach will determine the depth and quality of the recommendations report. Figure 2.4 illustrates the tensions in selecting the best approach to energy assessment combined with advice. Essentially, increasing skill levels, time, and costs are associated with more detail and accuracy, and these costs will be passed on to the householder unless they are subsidised in some way.
Another factor relates to the behaviour of residents. The so-called “rebound effect” is householders’ natural tendency to relax frugality when energy efficiency measures are in place, with the consequence that predicted fuel cost savings may not be realised. If the repayment of a loan to fund the cost of improvements is only afforded through reduced fuel costs (see Guide A) the householder may be worse off than expected and may experience difficulty repaying the loan. Thus the energy assessor must take the householder’s lifestyle into account and consider the possible consequences of the rebound effect when formulating recommendations. It is essential that the assessor provides some behavioural guidance (see Guide 9) alongside technical advice about improvements to the building and its systems.

### 2.4 Energy assessment tools

Most domestic energy assessment tools used in the UK are based on the Building Research Establishment Domestic Energy Model (BREDEM), which was first developed in the 1980s. BREDEM considers energy use for heating, hot water, cooking, fixed lighting and the use of domestic appliances. BREDEM provides a simple, reasonably accurate model with which to assess the fuel costs associated with domestic buildings and identify the causes of fuel poverty and condensation. BREDEM is the basis of the Standard Assessment Procedure (SAP) energy rating.

In the early 2000s, a requirement for the issue of Energy Performance Certificates (EPCs) led to the development of Reduced Data SAP (RDSAP). This is essentially a version of BREDEM for use in surveys of existing dwellings in which default data are substituted for some of the information collected on site in order to reduce the time and cost associated with surveys. The penalty for this is that the assessment is less accurate and the scope for evaluation of improvement options is limited. Accreditation schemes were set up and a large number of Domestic Energy Assessors (DEAs) were trained to deliver EPCs and limited improvement advice.
The need for large-scale low carbon retrofit of existing housing has focused attention on the inadequacies of RDSAP and the need for software that will accept actual occupancy data, take account of location and site factors and support the identification and evaluation of appropriate improvement options. The Home Energy Master Plan software developed by Parity Projects is one of the first examples of this new generation of domestic energy rating tools; a new version of SAP is also being developed. Table 2.1 summarises the main domestic energy assessment tools currently available.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
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<tr>
<td>Standard Assessment Procedure (SAP)</td>
<td>The Standard Assessment Procedure is the Government’s preferred method for energy assessment of dwellings. It is an implementation of BREDEM (BREDEM 9) in which the heating calculations are simplified and some of the flexibility of the inputs is removed. SAP is used for demonstrating the compliance of new dwellings with the Building Regulations, as well as for assessment of existing dwellings and the evaluation of improvement options. SAP uses a standard occupancy pattern and assumes that all dwellings are located in the East Midlands region.</td>
</tr>
<tr>
<td>Reduced Data SAP (RDSAP)</td>
<td>The Reduced Data Standard Assessment Procedure (RDSAP) is a “cut down” version of SAP for use in surveys and assessments of existing dwellings. “Least unlikely” default data are used for items that are difficult or costly to collect on site (e.g., ground floor insulation, window areas). Consequently, RDSAP is less accurate than the full SAP. RDSAP is used to generate Energy Performance Certificates (EPCs) and to identify and evaluate basic improvement options.</td>
</tr>
<tr>
<td>Passive House Planning Package (PHPP)</td>
<td>The Passive House Planning Package (PHPP) is an implementation in Microsoft Excel of a domestic degree-day model similar to BREDEM. It is used to demonstrate the compliance of designs for new dwellings with the Passive House Standard developed in Germany in the 1990s. PHPP can be applied to existing dwellings; it is similar to SAP but requires much more data and has a less well-developed user interface than most SAP software.</td>
</tr>
<tr>
<td>National Home Energy Rating (NHER)</td>
<td>The National Home Energy Rating (NHER) is based on BREDEM 12 and takes into account energy use for heating, hot water, cooking, lighting, and the use of appliances. The NHER is location specific (regional weather data are used) and the NHER software estimates annual fuel use, fuel costs, and carbon dioxide emissions (broken down by end uses) based on standard or specified occupancy.</td>
</tr>
<tr>
<td>Home Energy Master Plan (HEMP)</td>
<td>Home Energy Master Plan (HEMP) is a BREDEM-based tool developed by Parity Projects. It has additional modules and linked databases to facilitate the detailed modelling of energy use for heating, hot water, lighting, and appliances, and can be calibrated against householders’ fuel bills. HEMP has been designed to support the identification and comparative evaluation of improvement options, and the provision of improvement advice.</td>
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Table 2.1 Domestic energy assessment tools.
2.5 Gathering information

Here we look at what an energy surveyor or assessor has to do in order to understand the home that is being considered, provide an accurate assessment and deliver useful advice.

One of the main barriers to action identified by householders is lack of good independent advice, set in the context of their dwellings and their lifestyles. An assessment and the associated advice must reflect “trigger points” such as a planned extension or a redecorating project and show how proposed improvements can be integrated with them. Thus an assessment is much more than just an exercise in gathering data for input to software.

The aim should be that one visit satisfies all analysis and planning for the job, including the collection of information that sets the context of the calculations and subsequent recommendations. It is good practice to complete the work in a timely but professional fashion with least disruption to the homeowner. The assessor should:

• show restraint and not second guess the calculations that will follow; it is difficult to engender trust in your advice if subsequent calculations contradict a confident verbal recommendation early in the process
• be polite and always remember that he/she is a guest in someone else’s home, and a representative of all energy assessors and their profession
• observe health and safety rules especially when accessing areas of the house and its surroundings where hazards exist; a risk assessment and method statement should be completed and appropriate insurance cover should be in place.

Data format

Information will usually be recorded in one or more of the following formats:

• on paper forms or similar, for later input into assessment and reporting software
• as direct input into software on a portable computer or into a hand-held device for later uploading
• written notes about lifestyle, programmer and thermostat settings etc
• photographs, which can be input directly into some software tools; “a picture paints a thousand words”, so a digital camera is an invaluable tool for an energy assessor; video footage with commentary may also be useful.

Building data

Data must be collected to support each area of the assessment calculation. The list shown overleaf is not comprehensive but gives a feel for the work involved.
2 surveying and assessing dwellings for low carbon retrofit

**Built form**
- Built form (detached house, terraced house, flat etc)
- Property age, and age of any extensions

**Dimensions**
- Floor areas
- Storey heights
- Areas of all fabric elements through which heat passes
- Identification of exposed and semi-exposed heat loss elements

**Construction**
- The construction of exposed floors, walls and roofs
- Window frames and glazing types, weather-stripping and shading
- External door types and weather-stripping

This information is used to calculate thermal transmittances (U values) and the proportion of heat loss attributed to each element.

**Ventilation**
- Types of ventilation, including air bricks, trickle ventilators, extract fans and whole house systems

**Lighting and appliances**

Some assessment methodologies make default assumptions about electricity use but those that make use of occupancy data require information on appliance types and patterns of use. The number of low energy lamps currently used is usually required.

**Heating and hot water systems:**
- Main heating system type and fuel
- Boiler or other appliance type
- Heating controls
- Secondary heating system type and fuel
- Secondary heating controls
- Water heating system type and fuel
- Hot water storage tank size and insulation
- Solar water heating system type and characteristics
- Water heating controls
Spatial information

Information about the site is required in order to confirm the practicality of installing some potential measures, eg whether renewable technologies, solid wall insulation, external shading etc will fit in the space available. Such information is wide and varied, but some examples are:

- the positions of services that will affect the location of equipment or fabric alterations eg drainage, electrical sockets, meter positions, fitted cupboards, bathroom suites and tiling
- the condition of the underlying structure in case it needs improving in advance of works
- the availability of space for larger than usual hot water cylinders or whole house mechanical ventilation systems and their ductwork.

Assessors should exercise judgement on the extent and depth of the survey required, depending upon the circumstances.

Occupancy data

Occupancy data can be divided into two types:

Inferred data

Some analysis methodologies estimate energy-related demands on the basis of other related data, others allow dwelling-specific data to be entered.

The SAP energy rating uses a standard occupancy pattern and heating regime (heating times and temperatures); the demand for hot water is estimated from the floor area, and the use of electricity for fixed lighting is estimated from the floor area and the area and orientation of windows.

Other BREDEM-based tools allow for a standard heating regime or one defined from data collected on site; dwelling-specific data on cooking and appliance use may also be entered.

In practice, occupancy patterns vary significantly between dwellings and assessments that are used to support advice should take account of occupancy rather than relying on typical or standard occupancy patterns.

Dwelling-specific data

Some methods collect occupancy data through interview with the residents to determine data such as:

- typical internal temperature settings
- heating timings (on, off, daily and season)
- number of showers and baths taken each day
- how “washing up” is conducted
- number of hot meals cooked.

The crucial point is that for evaluation of fuel cost savings, actual occupancy data are much more accurate than standard occupancy data (which could result in the assessment being wrong in either direction).
Contextual information

Alongside information about the physical characteristics of a property and its use, it is necessary to collect contextual information to be sure that any recommended measures can be successfully installed. Here are some key categories of such information:

- **Physical** – It is often important to know what the occupier owns and where the boundaries are; it is possible that the extent of any works may be restricted.

- **Logistical** – The retrofit package must take account of the layout of the building as it may prevent materials being delivered to the house or scaffolding from being erected.

- **Administrative** – Statutory approvals (e.g., planning permission, approval under the Building Regulations) may be required, especially if the building has Listed status or is in a Conservation Area.

- **Legal** – As well as physical restrictions there may be covenants preventing certain works, e.g., Party Wall Agreements or restrictions on over-sailing elements of the building to other properties.

For more information about these issues see Guide 3 and Guide 4.

### 2.6 Other related assessments

A variety of other surveys or assessments may be used, alongside energy modelling, to contribute to the formulation of appropriate and rounded improvement advice.

**Thermography**

This is a technique involving the use of a special camera to detect infrared radiation and produce images called thermograms. Thermography allows us to see relative variations in the temperature of the building fabric and is helpful in identifying areas of thermal weakness in the building fabric.

Infrared thermography can be used as part of an initial survey to identify cold spots or “thermal bridges”, or during/after the installation of improvements, to check quality. It is useful for identifying defects such as rotten window frames, poorly installed external insulation or cavity wall insulation that has settled. Thermography can only be successfully conducted during the heating season when there is a significant temperature difference between inside and outside the house.

![Thermogram of a house showing cold areas (blue) and warmer areas (yellow). (Source: Bere Architects)](image-url)
Air permeability testing

The “draughtiness” of a house (ie the leakiness of the building envelope) may be evaluated using a procedure which establishes the rate at which air enters or leaves the building at a standard pressure difference between the inside and outside. The pressure is created by a large fan installed in an external doorway. The fan is operated in both input and exhaust (blow and suck) modes and the air flow rate is measured at a pressure of 50 Pascals (Pa).

The measured air flow rate can be expressed in terms of air permeability (m$^3$ of air per hour per m$^2$ of surface area of the building: m$^3$/hr/m$^2$ @ 50 Pa) or in terms of air changes per hour (the air flow rate in m$^3$/hour divided by the interior volume of the building). This test is mandatory for new dwellings to check that performance meets the standard set by the Building Regulations. It is good practice in retrofit and renovation projects when an emphasis is placed on air tightness and especially when a whole house mechanical ventilation system is proposed.

Assessment tools such as BREDEM can use the characteristics of the fabric (eg the number of chimneys, flues, wall types, windows etc) to derive estimates of the air change rate. These characteristics can be ascertained by the energy surveyor but an air permeability test removes the need for assumptions and makes the exercise more accurate. Moreover, when the test is under way it is possible to carry out an inspection of the house with a small smoke generator or by using negative pressure to locate the main air leakage paths. Pressurisation also improves the value of thermography.

Damp surveys

Damp can cause structural weaknesses in a building and can spread to other items of building fabric if left unchecked. It can also affect the health of occupants. Energy assessors should point out the presence of damp so that the dwellings can be inspected by a specialist and the source of damp removed before other work commences.

Asbestos surveys

Asbestos installed in the building fabric is generally deemed not to be harmful to human health. However, when it is handled the asbestos dust is extremely hazardous. If asbestos is detected during an energy survey the homeowner must be made aware of its presence so that regulated precautions can be taken until it is removed. A licensed specialist must be engaged to handle and remove asbestos to a licensed disposal site. Further guidance on asbestos is available from the Business Link website.

Habitation of plants, animals, bacteria or fungus

When an energy survey is carried out in a home it may be the first time in many years that certain areas of the house are inspected. The energy surveyor could expose a wide variety of possible issues – not just the most obvious and overt afflictions but also woodworm or dry rot which should be brought to the attention of the householder. Perhaps rare wildlife has taken up residence.

These problems must be followed up by appropriate specialists’ inspections before any other work is carried out. Usually these issues will have to be resolved before any energy improvement work can be carried out.
Pre-installation surveys for specialist installations

Many of the energy improvement measures proposed by an energy assessor will require more detailed pre-installation surveys to establish the full requirements for the measures in question and to enable specialist contractors to provide firm prices for the work. These surveys will collect more detailed information and identify the correct equipment, tools, materials and time it will take to do the work. Some examples of work that usually require a pre-installation survey are:

- cavity wall insulation
- solid wall insulation (internal or external)
- loft insulation
- window and door replacement
- heating systems and controls
- water efficiency devices and systems
- renewable energy systems such as solar panels and heat pumps.

2.7 Presenting assessments and evaluating improvement options

Once all the energy survey data have been collected and the analysis carried out, the assessment should be presented in a form that allows the householder or landlord to take their project forward. Independent and clear advice helps householders and landlords to make up their own minds and progress to implementation.

Key questions that the energy assessor should ask him/herself when setting out the recommendations include:

- Who is the audience, and what is the correct language and tone? The recipients may be householders, landlords, architects, engineers, builders or a Green Deal Provider.
- Will they prefer a detailed technical report, a PowerPoint presentation with diagrams or just a summary of a verbal report?
- Will the recipients need technical options identified, with their financial implications, before moving to the next stage?

For more information about this topic see Guide 3.
2.8 Skills for energy surveyors and assessors

This section identifies key skills required in people wishing to become an energy surveyor or assessor. The accuracy of recommendations is as much dependent on these skills as on the accuracy of the methodology or software used.

Key skills for energy surveys

- **Ability to communicate clearly with householders** – explaining the process, helping the householder to understand their role and collecting information about retrofit priorities; the surveyor will be working in partnership with the householder to identify the best solution. Surveyors will also need these skills at the end of the process when the results of the assessment are presented.

- **Ability to take measurements in accordance with agreed conventions** – measurements must be made such that another surveyor would get the same result.

- **An appreciation of how energy is used in buildings** – every building is unique and particular quirks of the building or the behaviour of its occupants must be appreciated and appropriately accounted for.

- **Ability to record findings clearly** – this is important, as the survey and assessment process may be iterative and colleagues or other assessors may need to participate; it is also important for audits by external accreditation bodies.

- **Ability to work in a professional, safe, well organised and consistent manner**.

Key skills for energy assessments

In most cases the energy surveyor will also carry out the energy assessment using proprietary software and present it to the client.

- **Ability to use the software effectively** – including entering data, interpreting results, recognising when something is wrong, correcting errors and keeping on top of updates.

- **Knowledge of improvement measures and their performance** – this will add quality to the report and help to future-proof the findings.

- **Knowledge of the typical costs of improvement measures** – to support recommendations about which measures are appropriate.

- **Knowledge of the limitations of improvement measures** – assessment software may identify applicable measures and predict their performance but will not assess their appropriateness.

- **Knowledge of the likely sequencing of works on site** – this will ensure that the advice fits with any other planned work.

- **Ability to write and present reports** – particularly the ability to write clearly in a manner that can be understood by both the householder and the appropriate specialists.

- **Ability to manage files and other data** – keeping your digital house in order.

- **Ability to sell the service** – many surveyors and assessors are likely to be independent and their success will depend on their ability to sell the home audit to householders and then persuade them to implement the recommended improvements.
Understanding detrimental effects on buildings

An energy assessor must also be aware that some energy efficiency measures can have side-effects for the house or the occupants. It is essential to understand these potential side-effects before recommending improvements in order to ensure that unintended consequences and residual risks are minimised. Side-effects include:

- the reduction in adventitious ventilation (ie uncontrolled ingress of fresh air) when a dwelling is insulated and made more airtight, resulting in a requirement for deliberate controlled ventilation to provide adequate fresh air for occupants
- the risk of interstitial condensation on the now hidden cold internal surface of the original wall, when a solid external wall is insulated internally
- the need for ventilation of voids beneath suspended ground floors to help keep timber joists dry and free from rot
- the need for ventilation of unheated loft spaces and of insulated pitched roof constructions to prevent interstitial condensation causing timber joists and rafters to rot.

For more information about these issues see Guide 6 and Guide 7.

Training and accreditation of energy surveyors and assessors

There are many schemes under which domestic energy surveyors and assessors may be trained and accredited, as well as maintaining and extending their skills and competencies. Training and accreditation will be mandatory for Green Deal Advisors (who will deliver energy surveys, assessments and advice associated with the Government’s Green Deal). For information about the training and accreditation of energy surveyors and assessors, including GDAs see Guide B.

2.9 Summary of business opportunities

The following business opportunities have been identified in this guide.

Providing energy surveys, assessments and advice

This will be a service for householders and landlords, probably in the role of Green Deal Advisor. As the market for retrofits expands the demand for assessors will increase and it is likely that there will be two separate, complementary, approaches to this growing market:

Specialist energy assessors – Full-time energy specialists who may work for a number of clients on a freelance basis or work for one employer (probably a Green Deal Provider); they may rely on Green Deal Providers to market their services to householders.

Existing construction professionals – Many existing professionals will be assisting householders or landlords with refurbishment or extension projects, or giving them advice on particular problems; this will provide opportunities for energy surveys and assessments with a view to associating energy improvements with the other work.

These two approaches are complementary and will ensure that energy assessments are marketed on many levels. It is likely that as the demand for energy assessments grows professionals such as architects, engineers and building surveyors will seek qualification as energy assessors, or their practices will seek to employ specialist assessors. Members of technical trades such as plumbers and electricians might also embrace the assessment role.

Developing data capture applications for hand-held computer devices

This is a specialist activity that may be of interest to developers of business and technical software applications for hand-held computers and mobile phones.
Supplying survey equipment

The demand for surveying equipment, especially hand-held laser measurement devices, to support rapid domestic energy surveys is likely to grow with the market for energy surveys and assessments.

Preparing, submitting and negotiating statutory approvals

This is a time-consuming role that is traditionally filled by architects. There is scope for architects, surveyors, estate agents and solicitors to develop streamlined services for obtaining statutory approvals for low carbon domestic retrofit projects.

Conducting and reporting legal searches

This includes negotiating amendments to covenants etc in support of low carbon domestic refurbishment projects. This is traditionally a role for solicitors but there may also be opportunities for architects, surveyors and estate agents.

Providing thermographic surveys

The scope of this opportunity is difficult to estimate because of the high cost of the equipment and the limitation that thermography can only be carried out in suitable conditions (typically at night, in winter). Most thermographic surveyors rely on electrical testing work for most of their business.

Providing air permeability tests

This opportunity involves investment in equipment (approximately £2,000) and in training and accreditation (approximately £500 per year). Current market prices are around £200 per test or £500 for a day of testing on the same site. Currently most air permeability testing is conducted to demonstrate the compliance of new housing with the Building Regulations; the market in the retrofit sector is small but expanding.

Providing specialist pre-installation inspections and surveys

Most such surveys will be carried out for installers of insulation, building services or renewable energy systems, who may use their own staff or independent surveyors. Energy surveyors and assessors may be able to enhance their skills and expand their business into this market.

Providing training and accreditation for energy surveyors and assessors

This is a specialist activity currently dominated by the accreditation schemes for Domestic Energy Assessors, but there is scope for small-scale providers of training, linked to accreditation schemes or awarding bodies. For more information see Guide B.
Acknowledgements

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