

DVD TITLE**VIRTUAL EPC NUMBER 1: FOUR BEDROOM HOUSE
(THIS PROPERTY INCLUDES TWO EXTENSIONS AND A CONSERVATORY)****COMMENTARY**

The purpose of this DVD is to show the data collection for an energy assessment being carried out at an existing domestic property. This data collection can then be used to produce the Energy Performance Certificate or EPC. The EPC is a requirement of the European Union Energy Performance of Buildings Directive.

The energy performance certificates are produced by both Domestic Energy Assessors commonly known as DEAs and Home Inspectors or HIs.

The DVD will illustrate a method for carrying out the data collection for the assessment so that an Energy Performance Certificate (EPC) can be produced. It will also show the specific RDSAP methodology criteria relevant to this particular property.

The DVD can be used as part of a training programme for Domestic Energy Assessors and Home Inspectors or could potentially be used as part of a structured Continuing Professional Development (CPD) programme.

This virtual visual inspection of a four bedroom house will provide the information necessary for recording the appropriate data on your RDSAP survey forms.

Whichever data collection forms you use, you should have a set of blank forms available now so that you can fill them in as the DVD proceeds along its structured tour of the property.

Prior to visiting the assessment property, you would, of course, have ensured that you have the necessary equipment and that it is all in a satisfactory working order. This is part of your inspection and reporting requirements as a professional person.

In addition, you would have ensured that you would have the appropriate details for the assessment, for example the full address with postcode, the type of property, a map of the location (or more likely a satellite navigation system) and a blank set of site notes of whichever type you use.

After identifying yourself to the person at the property by showing your identity card and ensuring that a minor is not left in charge of the property, you can then commence the assessment.

Always remember to take sufficient photographs, they provide invaluable evidence. A checklist of essential photographs should be included in your site notes to ensure adequate coverage, however, you cannot take too many.

Prior to commencing the actual data collection part of the assessment, it is necessary to carry out a visual health & safety risk assessment.

This is best done using a pro-forma checklist. Whilst the risk assessment does not form part of the EPC, it is important to remember that, as the Domestic Energy Assessor or Home Inspector, you do have a duty of care to the home owner or occupier to bring any potential hazards to their attention in addition to ensuring your own safety.

Following the health & safety risk assessment, the data collection part of the process can commence, providing of course that any of the identified hazards do not prevent you from doing so.

The outside of the property holds much information relevant to the assessment.

Irrelevant of what data collection forms you use they all generally follow the same order and so it is normal to start outside identifying some of the property details.

You first need to identify the 'built form' of the property being assessed. It can clearly be seen that this is a house as opposed to a flat, maisonette or bungalow but you also need to consider its detachment. Is it detached, semi detached or some form of terraced property?

It is also necessary to record the approximate age of the property and identify it within the appropriate age band. This can be one of the areas most people have difficulty with. This is very important of course. By putting the property in the correct age band, the software can identify the building regulations at the time in relation to U values and typical construction types.

What characteristics of this property will help to identify the age of this property?

There is a particularly more modernist approach to the design of this house and those that make up the entire estate. This house has extensions and a conservatory which will need to be ignored when trying to age the dwelling as these will be dealt with separately.

The property has several characteristics that can help us identify the age such as:

A modern design style using plain brickwork that probably did not fit in well in its surroundings when originally constructed – these designs generally did not follow or copy other period designs. There is also a lack of chimney stacks on the whole development. The low pitch monopitch roof style with gable walls as opposed to a hip roof is another clue together with good sized windows and as here patio doors and fully glazed doors.

The landscaping is very square in design and the use of traditional plain brickwork for the external walls will help you place this property in the most appropriate age band.

What age band do you think it should go in?

There is still a lot more information to be obtained from outside the property.

Would you suggest that this roof is pitched or flat?

You should also be making additional notes on the evidence of solar heating or photovoltaics to the front elevation. The other elevation roof slopes will need to be checked before this can be recorded on the site notes.

A record should also be made of the glazed area. Is it normal for the age and type of property? Or is it more or less than typical?

All elevations must be taken into consideration here so until all elevations have been viewed an entry cannot be made on your site notes. When considering the amount of glazing, look at the surrounding properties. Are they of a similar age, type and construction? If so, does the glazed area of the assessment property look any different? Also, if you consider other properties you have experienced of the same age and type would you think the window area of this property is any different?

When considering the area of glazing you must remember to look at the property as a whole including any extensions or rooms in the roof for example but you must still ignore the conservatory as this is dealt with separately.

If more elevations can be viewed from the front, look at these making a note of any solar or PV to the roof slopes and the glazed areas.

Remember to take a photograph of all elevations showing the roof slopes. If any of the roof slopes cannot be seen then this must be recorded as a restriction to the inspection.

Identify if there are any extensions, a possible room in the roof or a conservatory present as you will have to collect the data separately on these.

The method used to construct the walls of the property must be determined. This property is clearly not stone construction so granite and sandstone are not possible options. Having narrowed the options down consider the clues to determining the actual construction. The bonding arrangement of the brickwork, the thickness of the external wall and the position of the window frame in the wall thickness.

Of course, the loft space is another valuable source of information to assist in determining the construction of the property. You should use all the evidence available to you.

In addition to the construction it is necessary to determine if there is any evidence to suggest that any additional insulation has been added since the property was originally constructed. In this particular case the owner cannot provide any evidence to suggest that any additional insulation has been added.

Whilst the owner is an invaluable source of information about the property, they may not know the full history and so you should always look for any evidence yourself such as drill holes in the mortar joints of the brickwork. This can be said for all aspects of the assessment and not just wall insulation.

The first action to be taken when entering the inside of the property would be to produce a sketch of the ground floor. This sketch should be large enough to show the individual rooms and the relevant dimensions taken to calculate the floor area and the heat loss perimeter. The sketch can be used to record considerable information and therefore should be well annotated.

Information commonly found on sketches could be light fittings, windows, radiators and heating controls. However, depending on the forms you use an alternative method may be adopted whereby this information is collected on a form of 'tally sheet'.

Now that you have a sketch produced it would be sensible to take the dimensions required. As this is a house, the decision would need to be taken on whether to take these dimensions internally or externally. Whichever you choose you must take all measurements from that situation and they cannot be mixed. For example, you cannot take external measurements for the ground floor and then take internal measurements for the first floor. This, of course does not relate to storey heights which are only measured internally.

Remember that it is the overall floor area that is required. Therefore, individual rooms do not need to be measured.

If the building is rectangular in shape and it is possible to be able to measure the overall distance from front to back and side to side, this would be sufficient measurements to calculate the floor area.

However, if overall dimensions cannot be taken, individual rooms may need to be measured to obtain the overall length and width. When doing this remember to include the thickness of any partition walls between the rooms measured.

Also remember that additional measurements may need to be taken to calculate the heat loss perimeter and also to record the storey height.

It is good practice to identify the heat loss perimeter walls whilst on site. This can be easily done with a highlighter pen, a different colour pen or simply by writing HLP next to the relevant dimensions.

It is important also to remember that extensions and conservatories are measured separately for floor area, heat loss perimeter and storey height.

A conservatory was found at this property and therefore it is necessary to consider what means of separation, if any, there is between the house and the conservatory. This will then determine if we need to collect any further information about the conservatory.

The original double glazed patio doors are still in place between the conservatory and the dining room. Would you suggest this is adequate separation? Does any further information need to be collected about this conservatory? Even if you determine that full separation exists and therefore no further information is required, still identify the conservatory on your sketch and make a note of the separation.

Data collection forms are not designed for the energy assessment to be carried out in an effective manner. They are designed for data entry into the software.

Therefore a means of collecting data on a room by room basis is required. This can be done either by

collecting the information on the already prepared sketch plan or by using a data table or 'tally sheet'.

Whichever method you adopt, it allows you now to carry out the assessment on a room by room basis.

On entering a room there is common information to be taken.

Let us take the lounge as an example:

Identify the name of the room, if it is heated and by what means. If a radiator exists also identify if a TRV is present.

You need to count the number of fixed lights in the room and also determine how many of these are low energy. Remember to include wall lights and any under cupboard lighting such as pelmet lights in a kitchen. Several lamps exist, how do we deal with these? When you have counted the number of light fittings, identify how many of these are low energy.

The amount and type of glazing is also required. Ensure you estimate the **area** of glazing in the room and not the number of windows. Also identify if the glazing is **single** or **double** glazed. Owing to changes in the Building Regulations imposed in 2002, it is also necessary to record the date of the glazing installation but simply is it pre or post 2002?

Check the storey height to ensure it is the same as the measurement already taken as it is not uncommon for floor to ceiling heights to vary between rooms.

Keep your eyes open for additional items such as room thermostats, programmers etc.

Having examined the lounge in this detail, each room will need to be assessed in the same manner.

If you come across any items that also need to be recorded but are on a separate part of the form, collect that data now while you are there. For example if you find the boiler in the kitchen record the boiler details there and then do not wait until later – you will only have to come back. Remember, if you have done your job properly, once you leave a room you should never have to go back in there.

As you move around the property you should constantly be carrying out a visual risk assessment to ensure the safety of yourself and others.

The heating system and its controls can have the largest impact on the overall energy rating of a property and so it is important as always to ensure accurate collection of data, not that you shouldn't elsewhere of course.

The heating controls can be located in various places around the property so ensure you have checked everywhere. If the owner is present and you have not found a programmer or room thermostat for example, why not ask them. This would be more suitable than failing to determine that one exists.

When you find a boiler, and have determined this as the main heating system, move to that part of your data collection form and record the necessary information.

While the boiler panel can generally provide this information it is worth having a look around the boiler, or asking the occupant, if they have any documentation relating to the boiler or heating system.

Record the type of boiler, the manufacturer and model number and any additional identifying information such as the Gas Council or GC number. Also identify what type of flue is used to remove the exhaust gases, the type of ignition and fuel.

Remember to take photographs of the boiler and information, the flue and any controls that are in place.

The means of heating the hot water will need to be recorded once you have determined how this is done. Does the boiler provide the hot water? Or is it heated independently?

If a hot water cylinder is discovered additional information will need to be recorded. What is the size of the cylinder, the type of insulation, its thickness and if a cylinder thermostat is present.

If an immersion heater is found in the cylinder you will need to determine if this is a backup only as it will be ignored in this case.

However, in this case no hot water cylinder was found and so the data collection was reduced but this would also help determine the boiler type if any further clues were required.

The type of electricity meter needs to be recorded. This is relatively simple as the majority of meters will have one or two sets of readings on them.

However, sight of a recent electricity bill from the occupant will confirm if they are actually taking benefit of off peak cheap rate electricity.

The rate of heat loss through the roof can be very excessive if adequate insulation is not provided. To record this information access to the loft is of course required.

A keen health and safety awareness is required prior to accessing the loft as some can be in quite awkward locations and you may also be putting your ladder on a slippery surface such as laminate flooring.

Therefore, you must always ask yourself "is there safe access to this loft or am I putting myself in a high risk situation?"

Take care when erecting your ladders in terms of safety and damage to decoration.

If using the occupant's ladders ensure they are safe to use by carrying out a visual check but it is always safer to use your own as you will be familiar with them and a prior check would already have been carried out.

Record the location of the insulation and the thickness. When recording the thickness ensure that this thickness is consistent all over the whole area of the loft space, otherwise you will need to compensate the recorded thickness to take account of any unevenness.

Whilst in the loft space also take a minute to check for any evidence of condensation. This could be considerable droplets of water on the sarking felt or white deposits on the timber. Recommending an increase in loft insulation thickness will only contribute to this problem getting considerable worse.

There is clearly no room in the roof present.

Should you discover any extensions there is numerous items of information that must be recorded for these also.

The type of information required is the same as for the main construction. These being extension age, wall construction type and insulation, roof construction and insulation.

Remember to record your dimensions of any extensions separate.

This property has two extensions and hence these should be recorded separately.

A checklist of the minimum photographs required is a simple but effective means of ensuring the appropriate evidence has been confirmed.

It is the sensible person who spends five minutes to perform a photograph check and check through the site notes to ensure all data collection information has been obtained.

Checking through the site notes there are some items that require clarification.

At this property there was no evidence of:

- whole house mechanical ventilation
- open fireplaces
- alternate wall construction
- secondary heating

That concludes our tour of this property and you should now have adequate information to be able to finalise your data collection forms and be in a position where you can enter the information into the software in order to generate an Energy Performance Certificate and an Energy Rating.

Pdf documents containing a transcript of this DVD and dimensioned floor plans of the property are included on this disc.

We hope you have found this DVD both useful and interesting. This DVD has been produced by Mark-it Television in association with Solving Construction.

Look out for further titles in this series.



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