



Wayshaper
Sustainable homes



Resources

wayshaper.co.uk

Inquiries and website support

hello@wayshaper.co.uk

Community

facebook.com/wayshaper

Expert retrofit support

Contact James Neward for further information about CCH's paid service at james@cch.coop

CCH

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The whole house approach



This approach considers a broad range of aspects: your comfort, your home and its history, indoor air quality and ventilation, moisture inside your home, energy use and bills reduction, as well as CO₂ emissions.

This holistic view helps to identify your options and how they can work together. It also reduces the risk of unintended consequences. For example, if the house becomes well insulated and more airtight but the ventilation strategy is not upgraded to provide the right level of ventilation, the risk of mould related issues increases.

Fabric first principles

1 Remedial work

Before any improvement works are carried out, it is essential to make sure that any problems have been fixed and that the house is in a state of good repair. This extends the lifespan of any works to improve your house for as long as possible.

2 Insulation

Once any existing issues are fixed, the building fabric (roofs, walls, floors) should be improved so the heat losses are reduced. This can be done by adding insulation, which has a long life compared to other systems such as boilers, heat pumps, and windows.

3 Airtightness

Airtightness is essential for a comfortable, draught free, and energy efficient house. Improving it means removing all the gaps, cracks, and unwanted openings in the external envelope of your home which comprises the roofs, walls, windows, doors and floors, minimising leaks and draughts.

4 Ventilation

Insulating and increasing airtightness in houses makes ventilation a key consideration for the retrofit works. Good air quality is essential to a healthy, comfortable home; reducing stuffiness and maintaining the health of residents. It is also essential to deal with excessive humidity, which if not controlled, can lead to condensation, damp, mould and health problems such as respiratory illnesses. Appropriately controlled ventilation is required to help maintain good relative humidity levels

5 Building services and renewable energy

Once the house is better insulated and less fuel is used for heating, the building services (heating, water, electricity) should be made more efficient. Building services have relatively short lives compared to insulation and they need to be replaced more regularly. Once the heating demand is lower and the building services are more efficient, the potential for renewable technology should be considered.

Carbon emissions

Reducing the energy demand of your home has the benefit of also reducing carbon emissions. Additionally, there is a financial element to this. In many cases, reducing emissions beyond insulating to reduce energy demand for space heating, requires a switch from onsite domestic fossil fuel boilers and transitioning to electric heating and hot water. Due to the UK's distorted energy prices (gas is significantly cheaper than electricity), this could have a negative financial impact on your budget and bills, especially if energy demand is not significantly reduced before switching. Focusing on energy use and switching to electricity future proofs your home as we head towards net zero and a renewable and low carbon future.





Workshop preparation

Planning and preparation will help you to get the most out of workshops and should be carried out at least 10 days ahead of a workshop to minimise potential issues.

Check your cards

The toolkit contains a card which lists the quantities of cards. Check that your toolkit is complete before commencing a workshop. To request a replacement for a missing card please email hello@wayshaper.co.uk at least 10 days in advance of the workshop.

Online resources

The options workshop cards link to web pages containing more information. These are accessed via the web addresses or the QR codes shown on each card. Access to these is granted under your account. Check that you have access to these resources pages via one the web address or QR code on one the cards, then logging in, or simply log in to your Wayshaper account.

Virtual workshops

Any participants joining a workshop via video call should have their own toolkits which can be ordered from hello@wayshaper.co.uk at least 10 days in advance of a workshop.

Property information

Gather the following information before conducting a workshop:

- EPC certificate or link to an online certificate
- Listed building or conservation area status, if applicable
- Record of known issues with building fabric, heating, or hot water

During later stages of the retrofit process you'll need to gather further information. This is not essential for the Wayshaper workshops, but there should be consideration for gathering the following documents:

- Building conditions survey
- Details of any existing retrofit measures
- Floor plans and other drawings
- Survey details showing building structure, e.g. materials used in walls, roofing etc

Objectivity and equity

It's helpful to agree an objective metric by which different homes can be compared, so that retrofit works can be prioritised for those most in need, and where the greatest positive impact can be made. The energy performance certificate (EPC) for each home is one way of comparing energy efficiency and related fuel consumption and cost.

However, it's important to take into account the individual circumstances of residents whose experience may differ from that of other residents. For example residents with lower mobility, or who experience greater sensitivity or particular impacts on their health as a result of conditions such as overheating or being cold.

Workshop facilitator's checklist

- ☐ The toolkit has been checked as complete at least 10 days before the workshop and any missing cards requested
- ☐ A method for objective yet equitable decision-making is in place
- ☐ The residents have agreed shared vision and values
- ☐ The residents have an agreed decision-making process
- ☐ Virtual workshop participants have their own toolkits
- ☐ The account log in has been tested and online resources are accessible



Conversations workshop

The aim is to explore the needs and preferences of the residents, framed across four areas: comfort and well-being, cost of energy, carbon emissions, and the construction and maintenance of homes.

Instructions

- 1** Have the property information detailed in the workshop preparation notes to hand.
- 2** State the process which is to be used for holding the conversation in a fair way so that all voices are heard, and state the process for decision-making.
- 3** State the vision and values shared between the residents, so that decision-making reflects the shared intentions.
- 4** Discuss the conversation topics in any order. Record the needs and preferences of residents, some of which may be common amongst residents, whereas others may be specific to a particular resident or their home. These findings will be used to help prioritise the retrofit works to be tackled in the options workshop.

Conversations questionnaire

Larger groups of residents may make a workshop impractical. A questionnaire can be used instead to gather input on the conversation topics.

Visit wayshaper.co.uk/conversations to obtain:

- Further instructions
- A questionnaire which residents can complete on a computer or a mobile phone
- A downloadable PDF questionnaire which can be printed out



Options workshop

This workshop can be carried out with all residents involved when there is a smaller group, or else just a working group who are responsible for planning and execution of the retrofit, representing the needs and preferences gathered in the conversations workshop or questionnaire.

Instructions





- 1** Have the property information detailed in the workshop preparation notes to hand.
- 2** Work through each set of options cards considering those which align with the residents' agreed needs and preferences expressed in the conversations workshop. Some retrofit works when carried out simultaneously can reduce the overall cost. Work through all of the cards to understand how different retrofit measures impact on each other and the order in which they should be carried out.
- 3** Some options may be immediately discarded due to the nature of the buildings or particular needs and preferences of the residents. This first pass of the options cards will help to focus areas of attention which can be further researched via the linked web resources.
- 4** Having focused and prioritised the retrofit measures, residents should now be in a position to seek specialist advice where needed plus tradespeople for any works which need to be contracted.

How to read the cards

The options cards provide concise overviews of each of the potential retrofit measures you may consider. They're not intended to be exhaustive in their descriptions, but to broadly outline the main benefits and considerations, with more detailed information available on the Wayshaper website.

Traffic light system

Options cards include a system to highlight key considerations.

-  Something which will obstruct this option
-  Something to be aware of or which may present difficulty
-  Options which are available
-  Grant potentially available, check the linked web page

Online resources

The cards link to web pages containing more information and helpful links, via the web addresses or the QR codes.

Carbon cost-effectiveness

😊😊😊😊😊 The measure pays for itself

😊😊😊😊😊 £0–10/tCO₂

😊😊😊😊😊 £10–100/tCO₂

😊😊😊😊😊 £100–500/tCO₂

😊😊😊😊😊 >£500/tCO₂

This is a way of measuring the relationship between the fuel cost savings and the emissions reduction in tonnes of CO₂ (tCO₂), calculated based on the lifespan of each individual measure, using the following formula:

$$\text{Carbon cost effectiveness (£/tCO}_2\text{)} = \frac{\text{Net £ cost (capital cost minus fuel savings)}}{\text{Whole life carbon emissions reduction tCO}_2}$$

Relative cost

£ £ £ £ £	up to £100
£ £ £ £ £	£100–£1,000
£ £ £ £ £	£1,000–£5,000
£ £ £ £ £	£5,000–£10,000
£ £ £ £ £	£10,000–£20,000+

These are broad indicators and should be used as a comparative metric rather than for planning budgets.

Disruption

↗ ↗ ↗ ↗ ↗	Minimal
↗ ↗ ↗ ↗ ↗	Low
↗ ↗ ↗ ↗ ↗	Moderate
↗ ↗ ↗ ↗ ↗	High
↗ ↗ ↗ ↗ ↗	Significant

Many works can be carried out in separate stages whilst the home is being lived in, reducing disruption. However, combining works can reduce overall cost.

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