

# **Future-Fit Home Plan**

# Introduction

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**Future-Fit Homes is part of the Green Meadows project, supporting local action on the climate crisis. Energy use in homes accounts for around 15% of UK carbon emissions, so getting our homes future-fit is a key step to reducing our impact on the planet.**

## Your Future-Fit Plan

This document lays out a step-by-step plan to improve the energy efficiency of your home. It identifies appropriate measures to reduce your home's energy use and environmental impact, whilst improving your comfort and lowering your energy bills.

The suggested measures are grouped to maximise effectiveness and minimise costs. Taking a 'whole-house approach' based around you and your priorities will ensure that each step is carried out in order, reducing disruption and enabling future work to be carried out successfully.

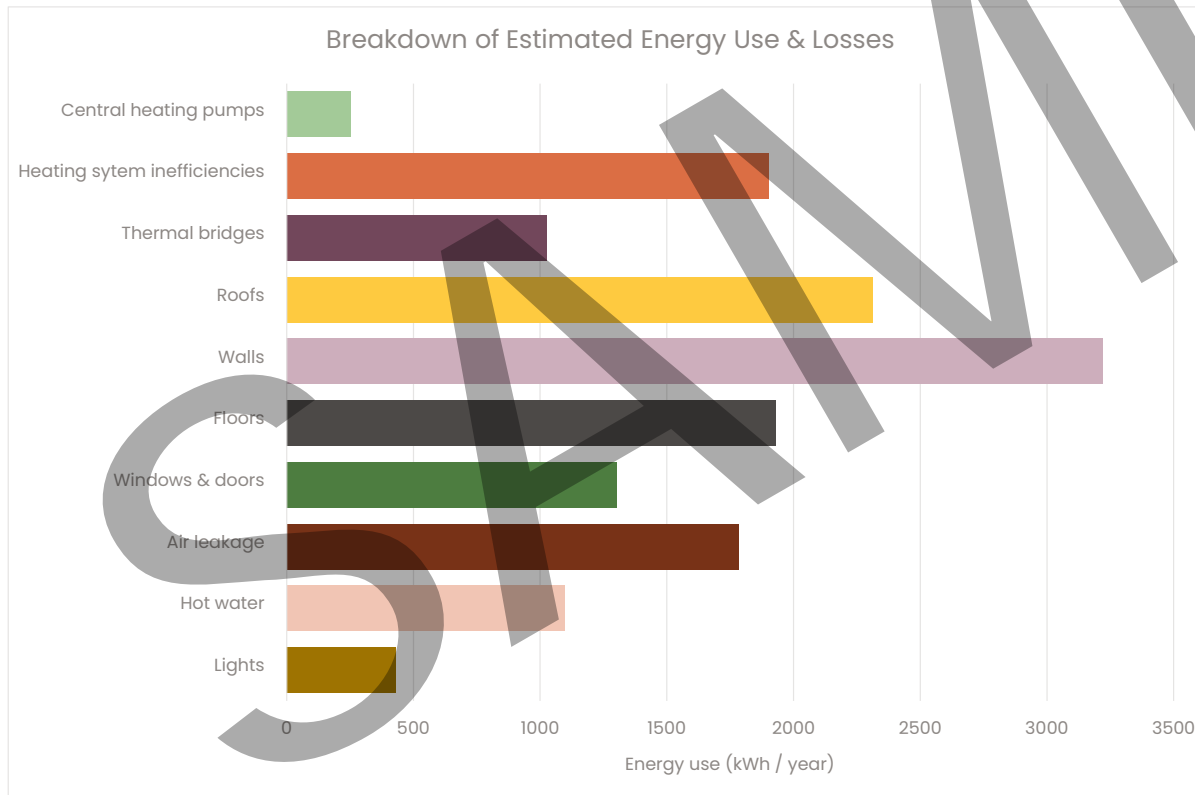
This plan has been developed based on your future-fit home assessment; information provided by yourself; and publicly available data, such as EPC data and historic maps. Cost estimates and energy and carbon savings are calculated using industry approved calculation and modelling techniques.

## The Future-Fit Process

- 1 We gather preliminary information about your home by speaking to you, and carrying out desktop research.
- 2 One of our expert team visits your home to carry out a full assessment of the building and to talk to you about how you use it.
- 3 The information we gather will be used to evaluate the available options and assess which are best for you and your home.
- 4 We will create a bespoke plan for your household, including estimates of energy and bill savings.  
  
Your plan will include basic details and specifications to communicate key information to contractors and installers.
- 5 The Green Meadows team will support you to put your Future-Fit Home Plan into action!

# Your Home Now

**Energy Use:** The chart below gives a breakdown of the main ways that energy is used and lost in your home. It shows that most energy is lost through the walls and roof of the building, as well as through the floors and gaps in the building fabric which cause air leakage. The figures to the right are a few ways of showing the energy use and environmental impact of your home.



Environmental Impact Rating (EIR)

**61 D**

(out of 100 – higher is better, average is 59)

CO2 emissions

**3.75 tonnes**

(CO<sub>2</sub>e tones/year, average is 3.9)

Estimated Annual Energy Use

**18,057 kWh**

(based on average occupancy)

Estimated fuel bills

**£1,012 per year**

(based on average tariff and occupancy)

# Improvement Options

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**Option Evaluation:** A range of possible energy improvement options has been chosen based on your future-fit home assessment. These measures have been modelled to estimate the effect that they would have on your energy use, carbon emissions, and energy bills.

The installation cost of each measure has also been estimated, however this can only give an indication of possible costs, and may vary significantly depending on a wide range of factors.

There may be grants and / or finance options available to help with the cost of energy efficiency measures - therefore before proceeding with any measures it is worth finding out what is available by calling Nottingham Energy Partnership on **0115 985 9057**.

The following pages give a brief overview of the main measures recommended for your home.

## The Whole House Approach:

It is very important to consider home improvements from a 'Whole House' perspective, as different measures will interact with one another. The order in which measures are installed is particularly important:

**Insulation:** The cheapest energy is the energy you don't use. Reducing the amount of heat lost by a building will reduce how much energy is needed to heat it. It also allows any new heating systems to be sized according to the amount of heat needed to keep the improved building warm.

**Building Services:** Once the heat demand of the building is reduced, a new heating system can be designed to maximise energy efficiency. Sizing a heating system appropriately will mean it is likely to be cheaper to install and more efficient to run. Low carbon heating technologies like heat pumps - which supply heat at a lower temperature than traditional central heating systems - also work much better in well insulated homes.

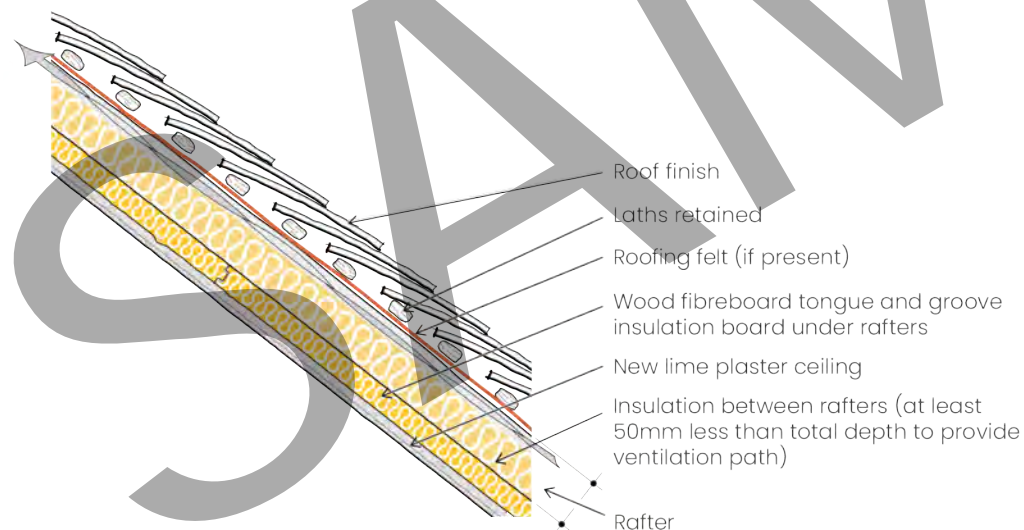
**Renewable technologies:** Generating your own energy from renewable sources, such as installing solar PV panels, can help to reduce the carbon emissions from the energy that you use. However, the short lifespan of these technologies, and the expense of having them installed, generally makes them a far less cost effective option than insulation and heating improvements.

# Sloping Ceiling Insulation

**What it is:** Sloping ceiling insulation is insulation installed at rafter level - i.e. the sangled beams supporting the roof. This is usually the best option for homes with a room in the roof space, such as a converted attic.

**How to do it well:** It is good to insulate roofs from outside if possible - for example when the roof is being replaced. If this is not an option, insulation can be carried out from inside the property.

It is important to consider which materials are used, and how the roof will be ventilated, to prevent the structural timbers from rotting. The insulation must be fitted tightly to be effective, and should be installed both between and below the rafters where possible to minimise cold bridges.



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## Cost



## Disruption



## Effectiveness



## Key Considerations

- How will the roof timbers be ventilated?
- Is the roof due to be replaced in the near future?
- Is there an existing vapour barrier (e.g. roofing felt)?
- How will the insulation meet adjoining wall or loft insulation?

# Evaluating Improvement Options

## Summary

One way to compare the effectiveness of different energy improvement measures is to look at the amount of CO2 saved by the measure, compared to the 'lifetime cost'. Lifetime cost takes into account both the initial cost of the measure and the amount of financial savings that the measure will make over its useful lifetime. Therefore, 'carbon cost effectiveness' tells us how much money we are spending to save one tonne of carbon - so the lower the cost, the more 'carbon cost effective' the measure is.

## Recommended measures

Most cost effective

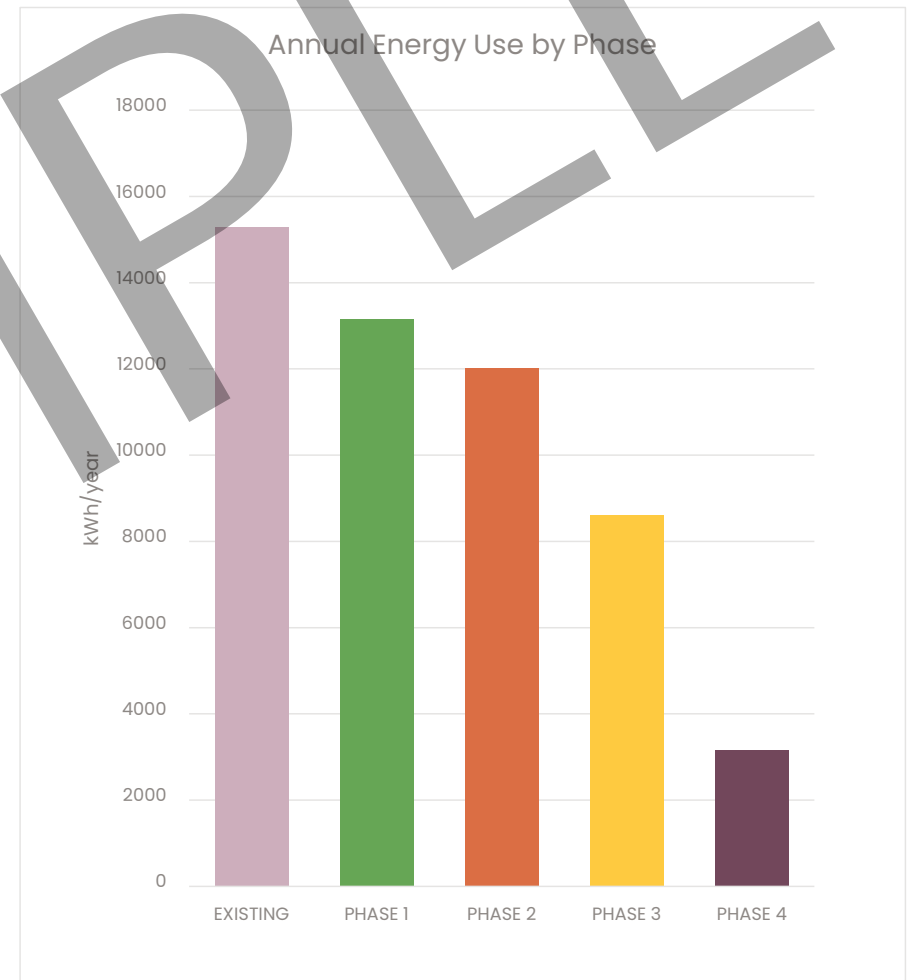


Least cost effective

Measure	Capital cost	Lifetime cost (or savings)	Lifetime CO2 savings (tCO2e)	Cost per tonne CO2 saved
Cavity Wall Insulation	409	-£568	11.54	-£243
Room-in-roof insulation	2763	-£1,905	24.90	-£171
Loft Insulation	433	£28	45.00	£30
Internal Solid Wall Insulation	5768	£931	42.90	£81
Suspended floor insulation	1643	£683	2.29	£298
Draught-proofing & Airtightness	253	£109	0.34	£315
Air Source Heat Pump	10000	£7,745	23.07	£336
Flat roof insulation	2163	£1,435	1.74	£825

# Medium Term Plan

Phase	Proposed Measures	Capital Cost*
1.	<ul style="list-style-type: none"> <li>• Extract ventilation to bathroom and kitchen</li> <li>• Room-in-Roof insulation (including sloping roof and dwarf wall insulation)</li> <li>• Loft insulation (top up to 300mm)</li> </ul>	<b>£3,900</b>
2.	<ul style="list-style-type: none"> <li>• Cavity Wall Insulation</li> <li>• Flat roof insulation</li> </ul>	<b>£2,600</b>
3.	<ul style="list-style-type: none"> <li>• Internal Wall Insulation</li> <li>• Suspended floor insulation</li> <li>• Airtightness &amp; draught-proofing (floor)</li> </ul>	<b>£7,700</b>
4.	<ul style="list-style-type: none"> <li>• New Heating System (including Hot Water Tank, new radiators, heating controls)</li> <li>• Air Source Heat Pump</li> </ul>	<b>£11,400</b>



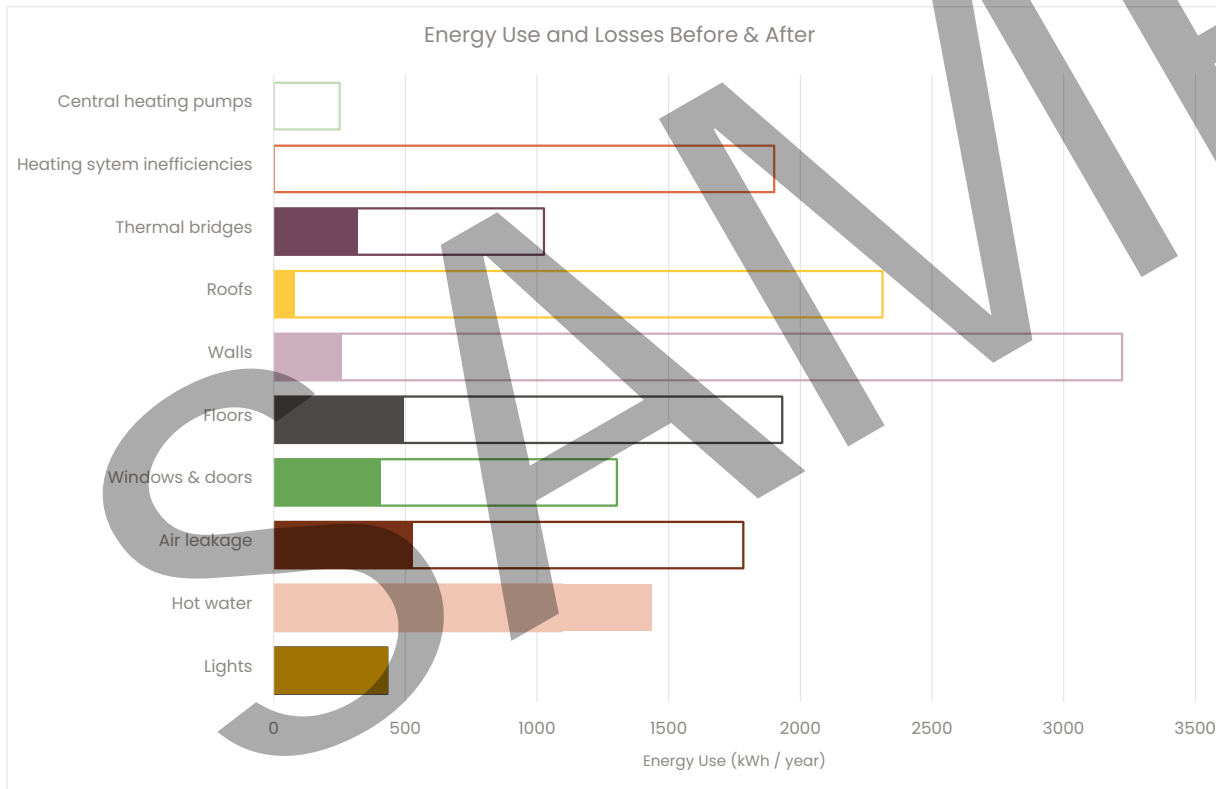
# Phase 1

Measure	Details	When to do it
<b>Ventilation:</b>	<ol style="list-style-type: none"> <li>1. Install extractor fans in bathrooms and cooker hood in kitchen with extraction to outside.</li> <li>2. Add trickle vents to windows in all living areas (living rooms and bedrooms).</li> <li>3. Ensure that all doors have sufficient undercuts to allow air to move through the house (i.e. a space of at least 5mm between the bottom of the door and the floor finish).</li> </ol>	<ul style="list-style-type: none"> <li>• If there is any sign of damp or mould.</li> <li>• When measures are installed which will make your home more airtight e.g. insulation, draught-proofing.</li> <li>• When making changes to a kitchen or bathroom, or installing new windows.</li> </ul>
<b>Loft insulation:</b>	<ol style="list-style-type: none"> <li>4. Remove and replace any existing insulation which is in poor condition.</li> <li>5. Install insulation over existing to a depth of at least 300mm.</li> <li>6. Install a breathable membrane or a boarded platform over the insulation, sealed at edges for airtightness.</li> </ol>	<ul style="list-style-type: none"> <li>• Whenever the loft is clear and accessible.</li> <li>• When upgrading wall or sloping ceiling insulation</li> </ul>
<b>Room-in-roof insulation:</b>	<ol style="list-style-type: none"> <li>7. Insulate between rafters using vapour permeable flexible insulation, and below rafters using a vapour permeable rigid board insulation. Seal for airtightness.</li> <li>8. Re-plaster and finish ceiling breathable paint.</li> <li>9. Make access behind stud wall (e.g. via a hatch) and install flexible insulation between studs.</li> </ol>	<ul style="list-style-type: none"> <li>• When redecorating the room</li> <li>• When carrying out any other insulation works e.g. loft insulation or internal wall insulation</li> <li>• When converting or making access to space in the roof</li> </ul>



# Your Future-Fit Home

**Energy Use:** The chart below gives a rough comparison of how the energy used and lost in your home could change following completion of all stages of your Future-Fit home plan. The figures to the right show how making these changes could effect your home's annual energy use and CO2 emissions. We have not given a figure for the estimated fuel bills, as it is impossible to accurately predict how fuel costs will change in the 10-20 year period over which this plan is likely to be carried out.



Environmental Impact Rating (EIR)

**80 C**

(Down from 61 D)

CO2 emissions

**1.93 tonnes**

(CO2e tones/year. Down from 3.75, average is 3.9)

Estimated Annual Energy Use

**3,720 kWh**

(Down from 18,057 kWh, based on average occupancy)

# Next Steps

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## 1. Review your options

Take a look through your Home Plan with a member of the Future-Fit team, who can offer explanations and answer any questions that you have. Consider your priorities and how these correspond with the suggested order of works.

By answering our assessors questions about your income, health and any benefits that you receive, we can identify any grants or funding to help you to make improvements. By keeping your information on our database, we can also let you know if any funding becomes available in the future.

## 2. Plan your improvements

Think about any repairs or maintenance tasks that need to be carried out in the near future and any other home improvements you are planning to make. Consult the 'when' column of your phased retrofit plan and the 'Maintenance and Home Improvements' page to identify any measures which could be efficiently integrated with these other works.

If you are interested in carrying out any of the works yourself, our **Future-Fit Skills** workshops could be for you. We are providing free, hands-on and online training to help you to get it right.

## 3. Get some quotes

If you are looking for a professional to carry out the work, we can help. We will request quotes from our list of trusted contractors and suppliers, and can help you to review the quotes and decide the best route to take.

## 4. Get Future-Fit!

When you are happy to proceed, we can offer further services to help you to manage your project from start to finish. NEP are a registered Home Improvement Agency, offering personalised packages of support to help with everything from sorting out contracts to signing off works.

**Get in touch:** For further advice and services call NEP on **0115 985 9057**

# Installation Record

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Phase	Stage	Measure	Installer or Contractor	Date of Completion	PAS 2030 compliant?	EPC updated?