Energy Efficient Homes

Net Zero Carbon Toolkit Information Sheets

Sheet no 7: Insulation: Walls

Types of wall

- **Solid and cavity**
- **Timber, stone, brick**
- **Historic and modern**

Respect the nature of the building!

To avoid problems the Whole House Retrofit plan must be tailored to the characteristics of the building. Since the 1920's cavity walls have become common in the UK, and are now standard. Before that time most walls were a single skin of brick or stone with no insulation. Shropshire has a large number of older half-timbered houses built with a timber frame filled in with wooden panels or wattle and daub.

These various types of wall construction require different approaches to insulation.

- Some older buildings and badly constructed newer ones present considerable challenges.
- Historic buildings require special treatment.
- Advice is essential in all cases, and planning consent may also be required.

See pages 47 and 52 of the Net Zero Carbon Toolkit document at:

www.westoxon.gov.uk/media/2ddb125k/net-zero-carbon-toolkit.pdf

For historic buildings see:

https://historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/insulating-walls-in-historic-buildings/

The Centre for Alternative Technology's page on natural building materials may also be useful:

https://cat.org.uk/info-resources/free-information-service/building/natural-building-materials

Types of insulation - Choosing the best alternative

Cavity

The function of cavity walls is to create a space of air to prevent damp from penetrating into the interior. All new homes now have in-built insulation in the cavity. It is now standard practice to retrofit

older cavity walls with insulation, but damp problems can emerge if the wall is unsuitable or the right materials are not used. See:

www.cse.org.uk/downloads/advice-leaflets/energy-advice/insulation-and-heating/advice_leaflet_cavity_wall_insulation.pdf

https://energysavingtrust.org.uk/advice/cavity-wall-insulation

External

Insulation can be applied externally to solid stone or brick walls. This will alter the appearance of the house, and may require alterations to the roof and eaves, the gutters and downpipes and the windows. Planning permission may also be required.

For further information see:

www.cse.org.uk/downloads/advice-leaflets/energy-advice/insulation-and-heating/advice_leaflet_external_solid_wall_insulation.pdf

https://energysavingtrust.org.uk/advice/solid-wall-insulation

Internal

Internal wall insulation is a useful alternative. It will make the rooms slightly smaller and will require the re-siting of electric sockets and skirting boards.

The following websites offer further information:

www.cse.org.uk/downloads/advice-leaflets/energyadvice/insulation-and-heating/advice_leaflet_internal_solid_wall_insulation.pdf

https://energysavingtrust.org.uk/advice/solid-wall-insulation

https://cat.org.uk/info-resources/free-information-service/eco-renovation/internal-wall-insulation

Other sheets available in this series

1. Fabric First: Planning changes to your home?
2. Preparing for Retrofit: Resources on your doorstep
3. The Energy Pyramid: The Principle behind the Whole Building Plan
4. Opportunities to Begin the Journey
5. First Retrofit Priorities
6. Insulation: Roof & Attic
7. **Insulation: Walls**
8. Insulation: Windows & Ventilation
9. Insulation: Floors
10. Water Efficiency
11. Heating systems
12. Lighting
13. Renewables
14. Costs & Grants