



# RISE

Retrofit information,  
support & expertise

# Insulation

## Quick guide

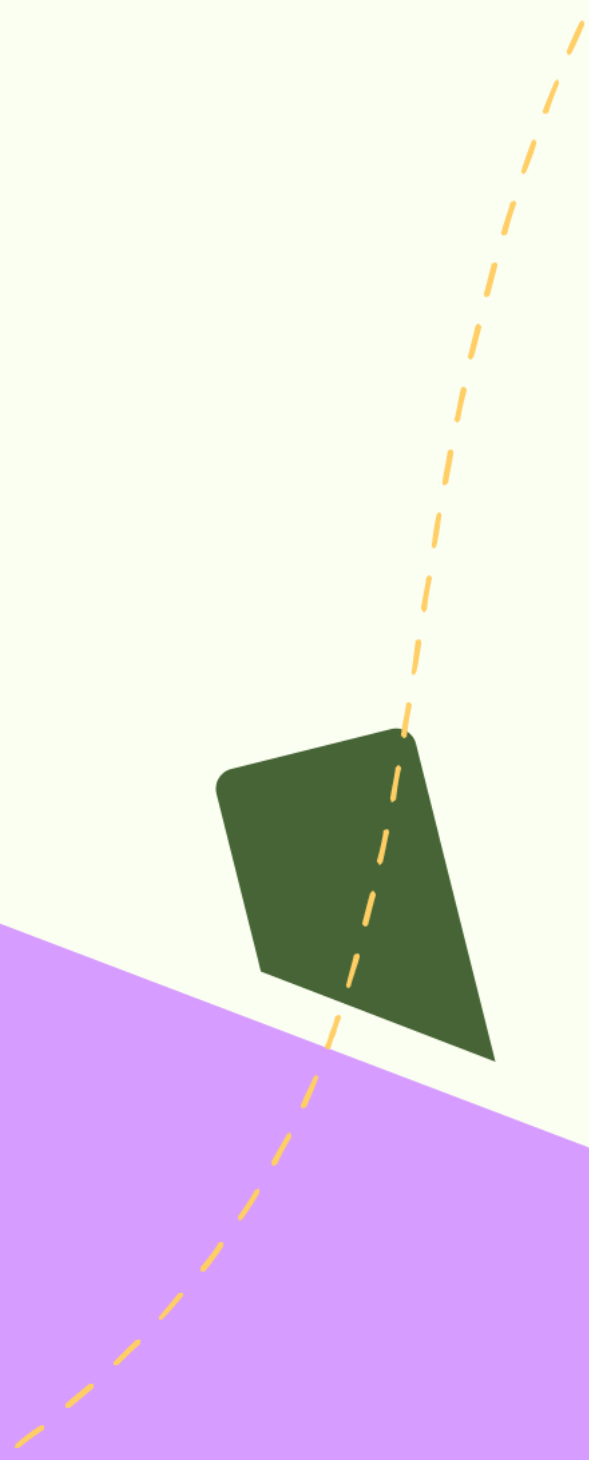
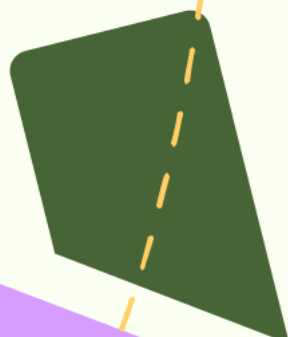

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[www.riseretrofit.org.uk](http://www.riseretrofit.org.uk)



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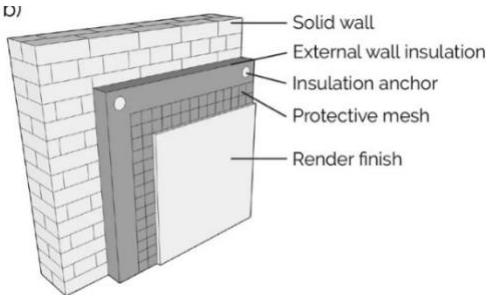
# Summary

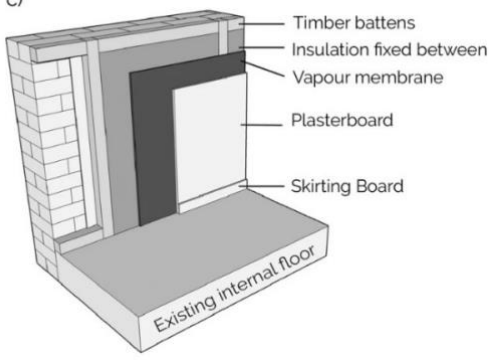
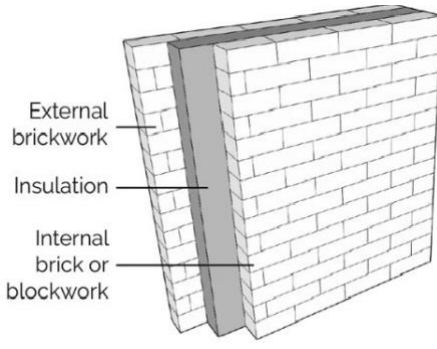

This quick guide document aims to address some of the common misconceptions in domestic retrofit regarding the various types of insulation. This document has been designed to help Local Authority (LA) officers and registered providers advise residents regarding insulation, including tips and best practices.

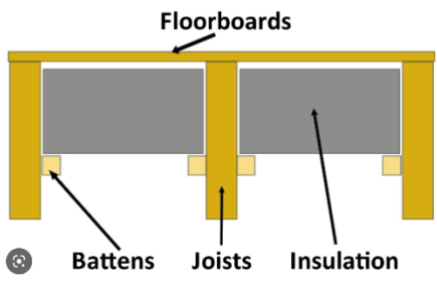
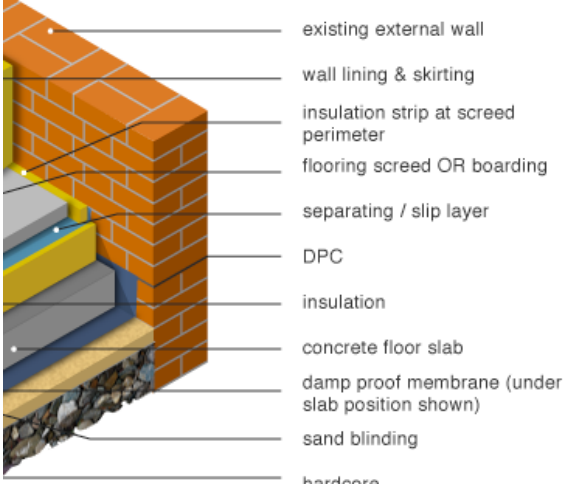
## What are the different types of insulation?

Most heat within a home is lost through the walls, floor, and roof. Insulation can help to reduce the amount of heat being lost through the home.

It is important to choose the right combination of insulation for a property. The correct type will depend on how the building was constructed (e.g. with a solid or cavity wall), the performance requirements for the retrofitted home, and whether there are any planning restrictions.

Insulation Type	Description	Example
<p><b>External wall type (EWI)</b></p>	<p>EWI is usually installed for solid wall properties. A layer of insulation is fixed to an external wall; then rendered or cladded. A range of finishes can be applied, to try and keep with the previous look of the building prior to EWI installation, e.g. brick slip finishes. Depending on the area, planning permission may need to be obtained beforehand. This could include listed homes or those located in a National Park, area of outstanding natural beauty, conservation area or within a World Heritage Site. Planning authorities should be consulted prior to undertaking any works if there is any uncertainty on planning permission.</p>	 <p>The diagram shows a cross-section of a wall. On the left is a brick wall labeled 'Solid wall'. To its right is a grey rectangular block labeled 'External wall insulation'. This insulation is attached to the wall by small circular 'Insulation anchors'. A grid of 'Protective mesh' is applied over the insulation. The entire assembly is covered by a 'Render finish'.</p> <p><i>External wall insulation. Source: Danielle Tingley</i></p>

<p><b>Internal wall insulation (IWI)</b></p>	<p>IWI is usually installed for solid wall properties. A layer of insulation is added to the inside of the property and will therefore not require planning permission (though it may require listed building consent). It will reduce the size of a room slightly and require the interior of the property to be redecorated. IWI may be particularly appropriate where the external appearance of a building needs to be maintained (for example, on a listed building).</p>	<p>c)</p>  <p>Internal wall insulation. Credit: Danielle Tingley</p>
<p><b>Cavity wall insulation (CWI)</b></p>	<p>Homes built after 1919 are likely to have a cavity between an inner and an outer wall. CWI is not an intrusive process. Insulation in the form of mineral wool or insulating beads is pumped into the cavity via small boreholes from the outside.</p>	 <p>Cavity wall insulation. Source: Danielle Tingley</p>
<p><b>Loft and roof insulation</b></p>	<p>Loft and roof insulation is intended to insulate a loft, attic, or roof. Depending on the structure of a home, ease of access to the loft space, and current use of the loft space, there are many alternative ways to insulate this area.</p>	 <p>Loft insulation. Source: which.co.uk</p>

<p><b>Suspended floor insulation</b></p>	<p>Suspended floor insulation is intended to insulate timber floors that are above an unheated space. New technology has made it possible to insulate suspended floors without much intrusion by using small robots which can go below the floorboard and spray insulation.</p>	 <p><i>Suspended timber floor insulation.</i> Source: The Green Age</p>
<p><b>Solid floor insulation</b></p>	<p>Insulation can be placed below or above a solid concrete floor.</p>	 <p><i>Solid floor insulation.</i> Source: Greenspec</p>

## Busting common misconceptions

### ‘Insulation only works in cold weather’

Insulation slows the movement of heat from warmer areas to cooler areas. Therefore, in the summer insulation keeps hot air outside from moving into the home and helps to keep cool air contained within the home.

### ‘The more insulation the better’

Beyond a certain point, additional insulation will have minimal impact on slowing the movement of heat. There is an optimal level of insulation for each property based on the external conditions and property archetype. Additionally, excessive insulation without proper ventilation can lead to condensation and damp. Consulting a professional when adding additional insulation is recommended, especially where condensation or damp is an existing concern.

### **'Insulation will need to be replaced'**

If insulation has been installed correctly, it should last for many years with little maintenance. In cases where damp and mould has occurred and damaged the insulation, it will need replacing. Thermal imaging surveys can be carried out to determine where insulation may have failed and needs replacing.

If insulation was added many years ago, it may not be meeting current building regulations (e.g., loft insulation should be 270mm thick) and should be topped up to maximise energy and bill savings.

### **'Insulation is a fire hazard and unsafe for my health'**

Insulation can be a fire hazard. To avoid this, ensure the insulation material chosen is right for the property and meets current fire safety and building standards. A retrofit specialist will propose suitable insulation materials for each property.

### **'External wall insulation is better than internal wall insulation'**

There are benefits and downsides to each. The biggest negative with internal wall insulation is the lost space inside and of the disruption to residents due to the amount of work required inside the home. Retrofit teams can assess each home and propose the measure which is most suitable for the property and best meets the residents' needs.

### **'There will be less storage space available with added insulation'**

Loft insulation can be put up on the rafters or under the boards. Where loft insulation is installed beneath the floorboards, and the floor needs to be raised slightly to accommodate the added insulation, there will be a slight reduction in storage space. Additionally, with internal wall insulation, there will be a slight reduction in space. It is worth noting that added insulation may increase the amount of usable space (i.e., space previously unused due to extremely warm or cold conditions) and will result in bill savings, so it could be worth the trade-off.

### **'Additional insulation will lead to damp and condensation issues'**

Damp and condensation issues can be an unintended consequence of insulation, especially if it is added without allowing for adequate ventilation. Retrofit teams and all contractors must be PAS 2035 certified so that they are aware how to install insulation appropriately, including any ventilation requirements.

Using a PAS 2035 compliant registered installer means residents can be confident that any risks associated with the insulation have been considered and mitigated against. For more information regarding ventilation and condensation, damp, and mould, refer to the quick guide on the RISE website.



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