

# Insulation

All Eco n'Home participants were provided with advice about reducing heat loss from their home through effective insulation.

This abstract explains why insulation is important and lists the installations that were made as a result of the Eco n'Home project.

## Where does the heat go?

(UK figures)



- 25% through the roof
- 15% from the floors
- 35% from the walls
- 10% through the windows
- 15% through the doors

Heat loss figures for domestic properties in France are available from ADEME:  
<http://194.117.223.129/servlet/getDoc?cid=96&m=3&id=24926&ref=12375>

## Types of insulation

The following information is provided by the UK's Energy Saving Trust:

### 1. LOFT INSULATION

Loft insulation traps heat rising from the house below. Insulation is laid over the floor of the loft, between and then over the joists if they are visible. Protective clothing, gloves and masks should be worn. Care must be taken not to insulate below the cold water tank, and not to compress the insulation in tight corners or eaves. Walk boards can then be laid over the joists to provide safe access from the loft hatch to any water tanks. By installing the recommended 270mm depth it is possible to save nearly 1 tonne of CO<sub>2</sub> per year.

### 2. CAVITY WALL INSULATION

In most houses built after the 1920s, the external walls are made of two layers with a small cavity between them. Filling this gap with an insulating material massively decreases the amount of heat that escapes through the walls. It helps create a more even temperature in the home, help prevent condensation on the walls and ceilings and can also reduce the amount of heat building up inside the home during summer hot spells. The cost of the installation can be paid back within 5 years, saving 750kg CO<sub>2</sub> per year.



**Eco n'Home** is a 3-year project taking place under the SAVE field of the European Commission's "Intelligent Energy Europe" programme.

Project partners are from France, Belgium, Germany, Italy, Portugal, and the United Kingdom.

**Aim:** reduce energy consumption and carbon dioxide emissions in a minimum of 1000 households. Target reduction of 10 to 20% in energy per household followed and 1 tonne in emissions.

### **3. SOLID WALL INSULATION**

Solid walls lose even more heat than cavity walls; the only way to reduce this heat loss is to insulate them. There are two types of solid wall insulation: external and internal.

External wall insulation: A decorative weather-proof insulating treatment is added to the outside of the wall. The thickness of the insulation is between 50 and 100mm. External wall insulation usually pays for itself in around six years and saves 2.5 tonnes of CO<sub>2</sub> a year.

Internal wall insulation: Solid walls can also be insulated by applying internal wall insulation. Types include ready made insulation/plaster board laminates or wooden battens in-filled with insulation. The construction of the laminates reduces the amount of heat that would otherwise pass through into the wall and outside. Internal wall insulation is cheaper than external wall insulation; however, the cost savings are lower.

### **4. FLOOR INSULATION**

Timber floors can be insulated by lifting the floorboards and laying mineral wool insulation supported by netting between the joists. However, it is important to avoid blocking under-floor airbricks in the outside walls - floorboards will rot without adequate ventilation. Floor insulation can save up to 350kg CO<sub>2</sub> a year.

### **5. DRAUGHT PROOFING**

Draught proofing involves sealing up cracks in windows, doors and letterboxes to decrease the amount of cold air entering the home, whilst still ensuring sufficient ventilation (to prevent damp). There are several types of materials available from brushes, foams and sealants to strips and shaped rubber or plastic. By installing draught proofing it is possible to reduce emissions by 140kg of carbon dioxide each year.

### **6. LAGGING PIPES AND HOT WATER TANKS**



Both tank and pipe insulation keep water hotter for longer by reducing the amount of heat that escapes. A new, 80mm thick hot water cylinder jacket has a payback time of around 6 months and pipe insulation within a year. In total, it is possible to save around 210kg CO<sub>2</sub> per year.

Further information is available on the project website: [www.econhome.net](http://www.econhome.net).