**Calculating heat loss through a wall**

# Photo of the cavity wall of a new build house with rock wool inside the wall cavity, between the breeze block layer and brick layer.Worked example

A typical cavity wall consists of two layers (or leaves) of masonry with a gap (cavity) between them. The materials used in each layer and the cavity itself have different thermal resistances.

The common makeup of a cavity wall consists of:

**Image © Shutterstock/Irene Miller**

|  |  |
| --- | --- |
| **Material** | **Thermal resistance, , (in m2 K/W)** |
| 100 mm clay brick | 0.18 |
| 50 mm air gap | 0.18 |
| 50 mm expanded polystyrene board | 1.25 |
| 100 mm concrete block | 0.15 |
| Outside surface resistance | 0.06 |
| Inside surface resistance | 0.12 |

Calculate the heat loss by 1 m2 of this wall when the temperature difference either side of the wall is 10°C.

U-value

where *R* is the thermal resistance

For this cavity wall, the thermal resistance is

U-value for the cavity wall:

W/m2K

## Rate of heat loss

Heat loss:

The temperature difference from one side of the cavity wall to the other was 10°C, or 10 K. The heat loss for 1 m2 of this cavity wall would be: