

# Ground floors

## Ground floor design




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**Knauf Insulation solution**

**U-values**


0.33    0.30    0.25    0.20    0.15    0.09

**Suspended timber floor**  
**Product:** Earthwool Loft Roll 44 / 40  
 See page: 218

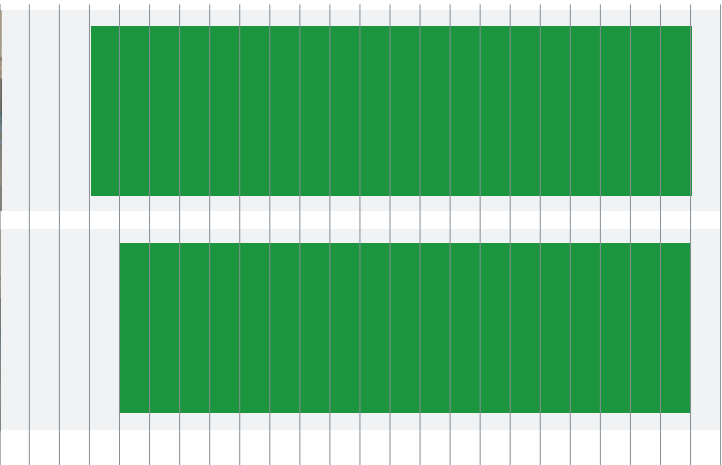


**Gf06**

**Suspended timber floor**  
**Product:** Earthwool Flexible Slab  
 See page: 218



**Gf08**



**Key**

- Thermal insulation achievable by constructions within this document.
- Pb01 Find online. Visit [knaufinsulation.co.uk](http://knaufinsulation.co.uk) and key in construction code to find the most up to date information on your chosen solution.

# Ground floors

## Suspended timber floor

### Earthwool Loft Roll or Earthwool Flexible Slab



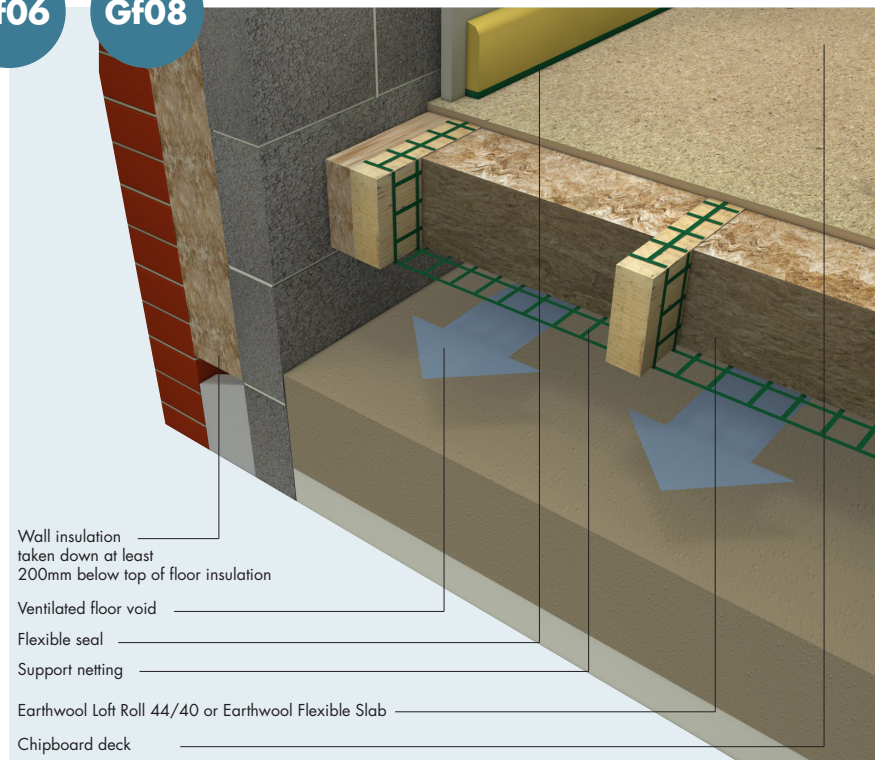
Gf06

Gf08

- Friction fitting between timber joists closes joints, preventing air movement and infiltration
- Flexible products which accommodates movements in floor ensuring all joints remain closed

#### Earthwool Loft Roll and Earthwool Flexible Slab

- Non-combustible with a Euroclass A1 reaction to fire rating
- A+ Generic BRE Green Guide Rating
- Zero Ozone Depletion Potential (ODP)
- Zero Global Warming Potential (GWP)



#### Products

**Earthwool Loft Rolls 44 / 40** are made from glass mineral wool and formed into rolls which are lightweight, flexible, resilient and non-combustible.

**Earthwool Flexible Slab** is a multi-use, flexible, rock mineral wool slab designed for friction-fitting in a range of acoustic, thermal and fire resistant applications.

#### Typical construction

A suspended and ventilated timber ground floor. The insulation is placed between the joists and supported on polypropylene netting.

The netting should be positioned to support the insulation so that there is no gap between the insulation and the underside of the floor deck.

The floor joists running parallel with masonry walls should be spaced at least 35mm away from the wall to allow insulation to be placed next to the wall.

The wall insulation should start a minimum of 200mm below the top of the floor insulation to minimise thermal bridging.

#### Installation

If the insulation is the full depth of the floor joists, staple the support netting to the underside of the first joist and unroll the netting, stapling to the underside (or side) of each joist as the netting is unrolled.

Where the joist is deeper than the floor insulation, mark the depth of the insulation on the side of the joists. Staple the support netting along this line and pull taut to the adjacent joist and staple again. Pull the netting over the top of the joist and staple to the depth of the floor insulation. Repeat the process until there is netting support to the whole floor.

Install Earthwool Loft Roll 44/40 ensuring there are no air gaps between the insulation and the underside of the floor deck.

Fix the chipboard floor deck in the usual way, using waterproof PVA glue at the joints, and allow a minimum 10mm gap at the room perimeter. If in doubt refer to the chipboard manufacturers instructions.

When fixing the skirting board, apply a self-adhesive foam strip to the underside of the skirting and two beads of sealant to the back surface. Apply pressure to ensure the foam strip is compressed immediately before fixing the skirting in place.

#### Performance

##### Thermal performance

Earthwool Loft Roll 40 has a thermal conductivity of 0.040 W/mK.

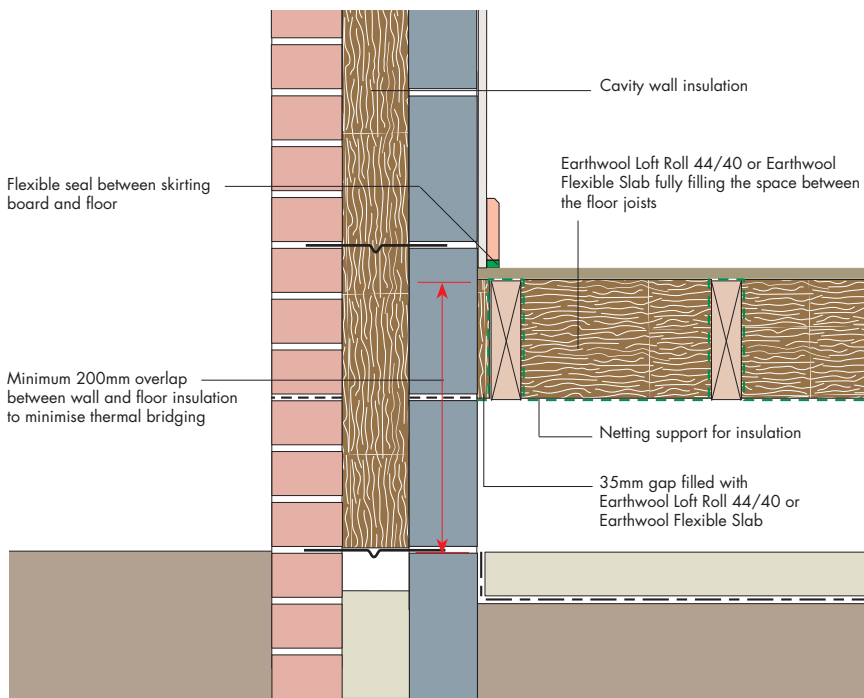
Earthwool Loft Roll 44 has a thermal conductivity of 0.044 W/mK.

Earthwool Flexible Slab has a thermal conductivity of 0.037 W/mK, except 140mm thickness which has a thermal conductivity of 0.035 W/mK.

##### Fire performance

Earthwool Loft Roll 44/40 and Earthwool Flexible Slab are classified as Euroclass A1 to BS EN 13501-1.

### Typical wall/floor junction



### Typical specification

Polypropylene netting to be (draped over and between the joists and stapled to the sides of each joist\*/stapled to the underside of the joists\*). (\* delete as appropriate)

Earthwool Loft Roll 44\*/40\*/Earthwool Flexible Slab\* of .....mm thickness and of width to suit joist spacings, supported on the netting and to be in contact with the underside of the floor deck. Earthwool Loft Roll 44\*/40\*/Earthwool Flexible Slab\* to be cut and placed to fully fill in the gap between the last joist and the perimeter wall. Flooring grade t and g chipboard to be fixed to the floor joists, all as specified by the designer.



Alternatively, consult the National Building Specifications, Standard version clause/ clauses...P10/250.....

Knauf Insulation specification clauses can be downloaded from [knaufinsulation.co.uk/nbs](http://knaufinsulation.co.uk/nbs)

### U-values of suspended timber ground floors insulated between joists

Thickness (mm)	Product combination	Product	U-values (W/m <sup>2</sup> K)								
			Ratio of perimeter (m) to area (m <sup>2</sup> )								
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
Gf06	300	-	Earthwool Loft Roll 40	-	-	-	-	-	-	-	
		150+150	Earthwool Loft Roll 44	0.10	0.12	0.13	0.13	0.13	0.14	0.14	0.14
	250	150+100	Earthwool Loft Roll 40	0.11	0.13	0.14	0.14	0.15	0.15	0.15	0.15
			Earthwool Loft Roll 44	0.11	0.13	0.14	0.15	0.16	0.16	0.16	0.16
	200	1x200	Earthwool Loft Roll 40	0.12	0.15	0.16	0.17	0.17	0.18	0.18	0.18
			Earthwool Loft Roll 44	0.12	0.15	0.17	0.18	0.18	0.19	0.19	0.19
150	1x150	Earthwool Loft Roll 40	0.14	0.17	0.19	0.20	0.21	0.22	0.22	0.23	
		Earthwool Loft Roll 44	0.14	0.18	0.20	0.21	0.22	0.23	0.24	0.24	
100	1x100	Earthwool Loft Roll 40	0.16	0.21	0.24	0.26	0.27	0.28	0.29	0.30	
		Earthwool Loft Roll 44	0.17	0.22	0.25	0.27	0.29	0.30	0.31	0.31	
Gf08	250	100+90+60	Earthwool Flexible Slab	0.10	0.12	0.13	0.14	0.14	0.14	0.14	0.15
	200	100+100	Earthwool Flexible Slab	0.11	0.14	0.15	0.16	0.16	0.16	0.17	0.18
	140		Earthwool Flexible Slab	0.14	0.17	0.19	0.20	0.21	0.21	0.22	0.22
	100		Earthwool Flexible Slab	0.16	0.21	0.23	0.25	0.26	0.27	0.28	0.29

Note: The U-values have been calculated assuming that the timber joists are 48mm wide at 600mm centres.

