Your One Stop Shop Insulation Provider

Application: Insulating the Ground Floor Timber Joist

- **High Performance Glasswool Roll 34** applied **Between** the timber joist.
- U Value Results **0.22, 0.21, 0.19, 17 & 0.16 W/m²K**
- Calculation Reference: GF 25m2 Timber Joist 1, 2, 3, 4, 5 & 6

Fully ventilated air space below the timber joist

Building Regulations ROI

The current back stop U Value for the ground floor is **0.21 W/m²K**

The preliminary building energy rating BER certificate will determine the U Value required for all new homes and extensive renovations. In most cases the U Values required are typically lower than the backstops.

- The lower the U Value the slower the heat loss
- The slower the heat loss the greater the savings

The insulation layer is simply the most important building material to consider when looking to achieve the best energy efficiency rating for your home. If the insulation layer is not fitted correctly it will fail. If the insulation fails, there will be no energy efficiency. The BER result does not take into account badly fitted insulation materials.

U Value Insulation
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Insulation Suggestions

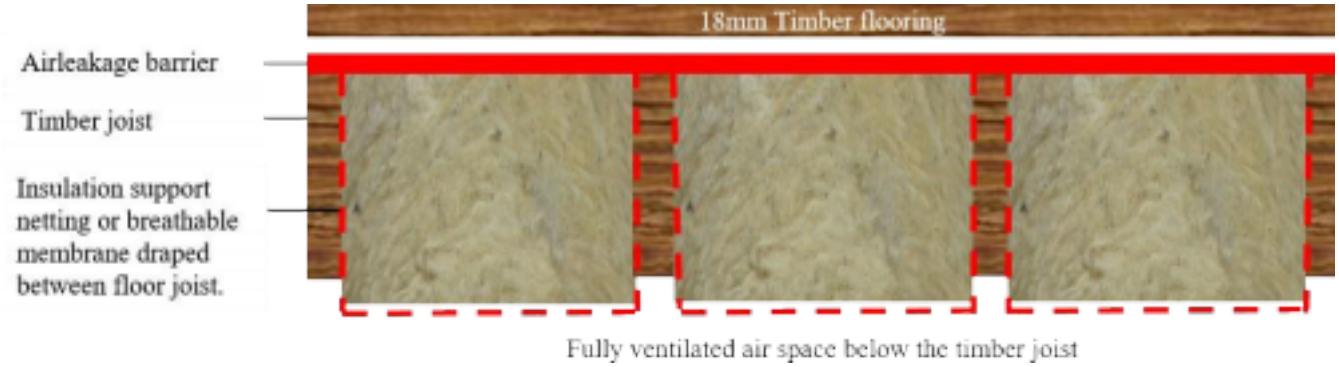
- **150mm** Knauf Earthwool OmniFit Roll **34**
- **150mm** Superglass Timber and Rafter Roll **34**
- **150mm** Isover Metac Roll **34**

Application: Insulating the Ground Floor Timber Joist

150mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.22 W/m²K



Layer	d (mm)	λ	layer λ bridge	Fraction	R	layer R	bridge Description
						0.170	Rsi
1	19	0.130	0.146				Flooring 2 Airtight membrane optional
3	**150**	**0.034**	**0.130**	**0.110**	**4.412**	**1.154**	**Glasswool Insulation Roll 34**
					Rs (underfloor)	0.170	4.898
	169 mm						

Total resistance: Upper limit: 4.020 Lower limit: 3.852 Ratio: 1.043 Average: 3.936 m²K/W U value of floor construction: 0.254 W/m²K

Ground parameters:
Perimeter P: 20.00 m Wall thickness: 300mm
Area A: 25.00 m² Ground type: Sand/gravel (λ = 2.0 W/m·K) P/A: 0.800 Rse: 0.04 m²K/W

U-value for ground (Ug) 1.156 U-value of floor deck (Uf) 0.254 Ventilation equivalent U-value (Ux) 0.251 U-value overall 0.215

U-Value (rounded) 0.22 W/m²K

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150mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.22 W/m²K

Insulation Suggestions

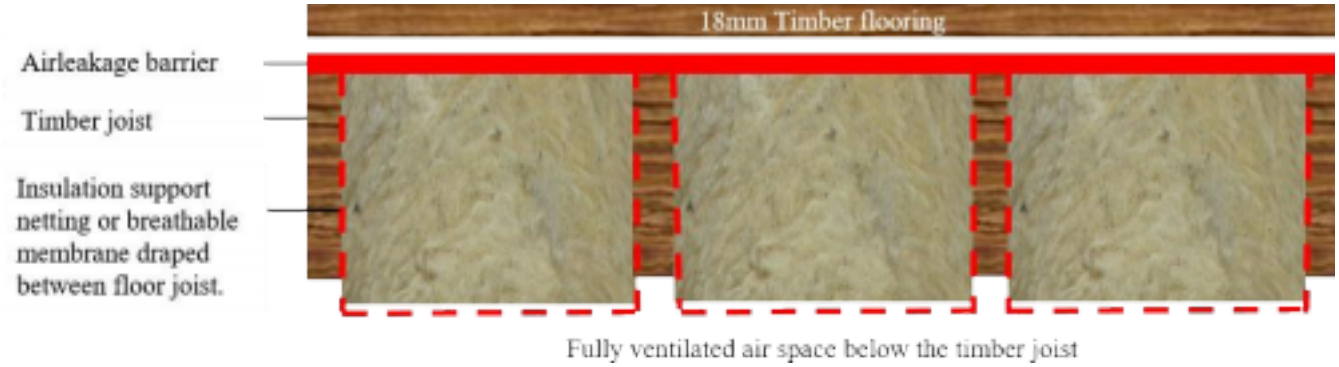
- **160mm** Knauf Earthwool OmniFit Roll **34**
- **160mm** Superglass Timber and Rafter Roll **34**
- **160mm** Isover Metac Roll **34**

Application: Insulating the Ground Floor Timber Joist

160mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.21 W/m²K



Layer	d (mm)	λ	layer bridge	Fraction	layer R	bridge	Description
							0.170 Rsi
1	19	0.130	0.146				Flooring 2 Airtight membrane optional
3	**160**	**0.034**	**0.130**	**0.110**	**4.706**	**1.231**	**Glasswool Insulation Roll 34**
							Rs (underfloor)
					0.170	5.192	
	179 mm						

Total resistance: Upper limit: 4.247 Lower limit: 4.077 Ratio: 1.042 Average: 4.162 m²K/W U value of floor construction: 0.240 W/m²K

Ground parameters:
Perimeter P: 20.00 m Wall thickness: 300mm
Area A: 25.00 m² Ground type: Sand/gravel (λ = 2.0 W/m·K) P/A: 0.800 Rse: 0.04 m²K/W

U-value for ground (Ug) 1.156 U-value of floor deck (Uf) 0.240 Ventilation equivalent U-value (Ux) 0.251 U-value overall 0.205

U-Value (rounded) 0.21 W/m²K

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Application: Insulating the Ground Floor Timber Joist

160mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.21 W/m²K

Insulation Suggestions

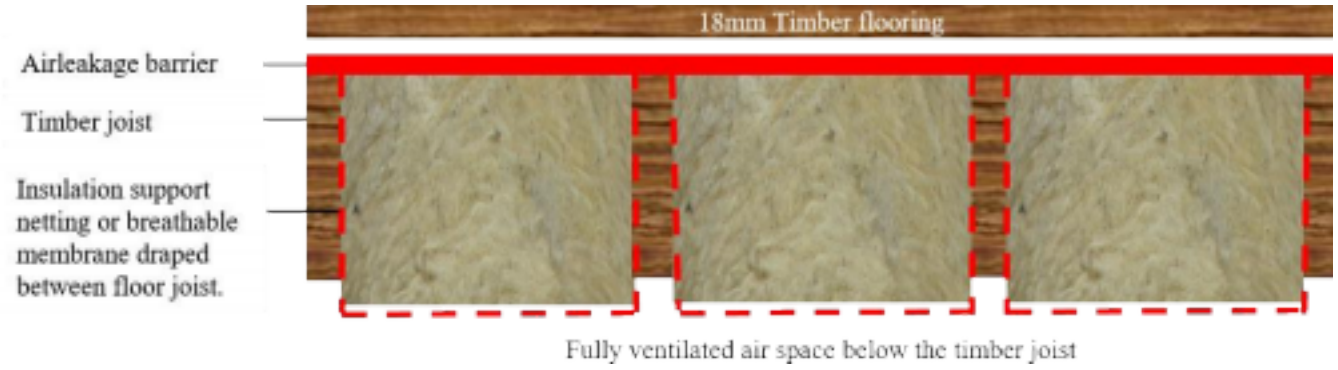
- **180mm** Knauf Earthwool OmniFit Roll **34**
- **180mm** Superglass Timber and Rafter Roll **34**
- **180mm** Isover Metac Roll **34**

Application: Insulating the Ground Floor Timber Joist

180mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.19 W/m²K



Layer	d (mm)	λ	layer λ bridge	Fraction	R	layer R	bridge Description
						0.170	Rsi
1	19	0.130	0.146				Flooring 2 Airtight membrane optional
3	**180**	**0.034**	**0.130**	**0.110**	**5.294**	**1.385**	**Glasswool Insulation Roll 34**
						0.170	Rs (underfloor)
	199 mm					5.780	

Total resistance: Upper limit: 4.700 Lower limit: 4.526 Ratio: 1.038 Average: 4.613 m²K/W U value of floor construction: 0.217 W/m²K

Ground parameters:
Perimeter P: 20.00 m Wall thickness: 300mm
Area A: 25.00 m² Ground type: Sand/gravel (λ = 2.0 W/m·K) P/A: 0.800 Rse: 0.04 m²K/W

U-value for ground (Ug) 1.156 U-value of floor deck (Uf) 0.217 Ventilation equivalent U-value (Ux) 0.251 U-value overall 0.188

U-Value (rounded) 0.19 W/m²K

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Application: Insulating the Ground Floor Timber Joist

180mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.19 W/m²K

Insulation Suggestions

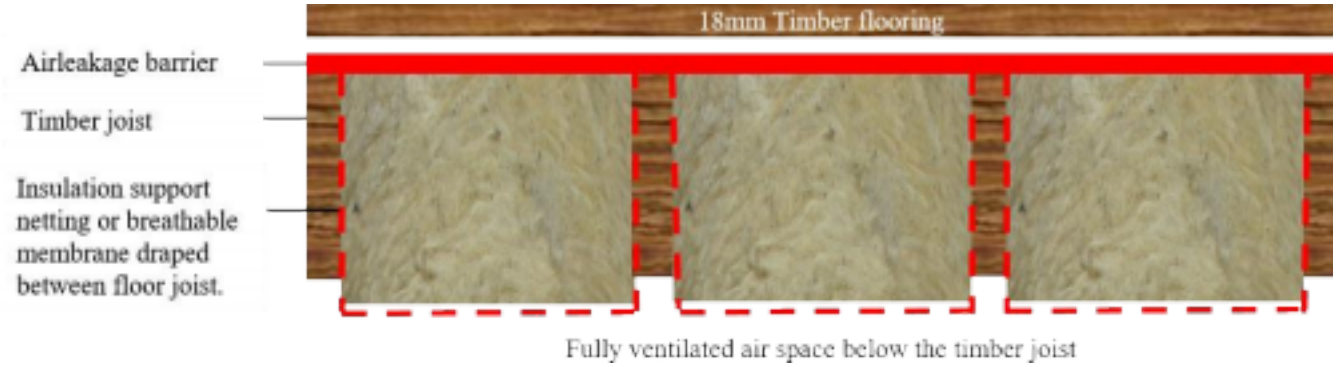
- **100mm x 2** Knauf Earthwool OmniFit Roll **34**
- **100mm x 2** Superglass Timber and Rafter Roll **34**
- **100mm x 2** Isover Metac Roll **34**

Application: Insulating the Ground Floor Timber Joist

200mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.17 W/m²K



Layer	d (mm)	λ	layer λ bridge	Fraction	layer R	bridge Description
					0.170	Rsi
1	19	0.130	0.146			Flooring 2 Airtight membrane optional
3	**200**	**0.034**	**0.130**	**0.110**	**5.882**	**1.538 Glasswool Insulation Roll 34**
						Rs (underfloor)
					0.170	6.369
	219 mm					

Total resistance: Upper limit: 5.152 Lower limit: 4.974 Ratio: 1.036 Average: 5.063 m²K/W U value of floor construction: 0.197 W/m²K

Ground parameters:
Perimeter P: 20.00 m Wall thickness: 300mm
Area A: 25.00 m² Ground type: Sand/gravel (λ = 2.0 W/m·K) P/A: 0.800 Rse: 0.04 m²K/W

U-value for ground (Ug) 1.156 U-value of floor deck (Uf) 0.197 Ventilation equivalent U-value (Ux) 0.218 U-value overall 0.173

U-Value (rounded) 0.17 W/m²K

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Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.17 W/m²K

Insulation Suggestions

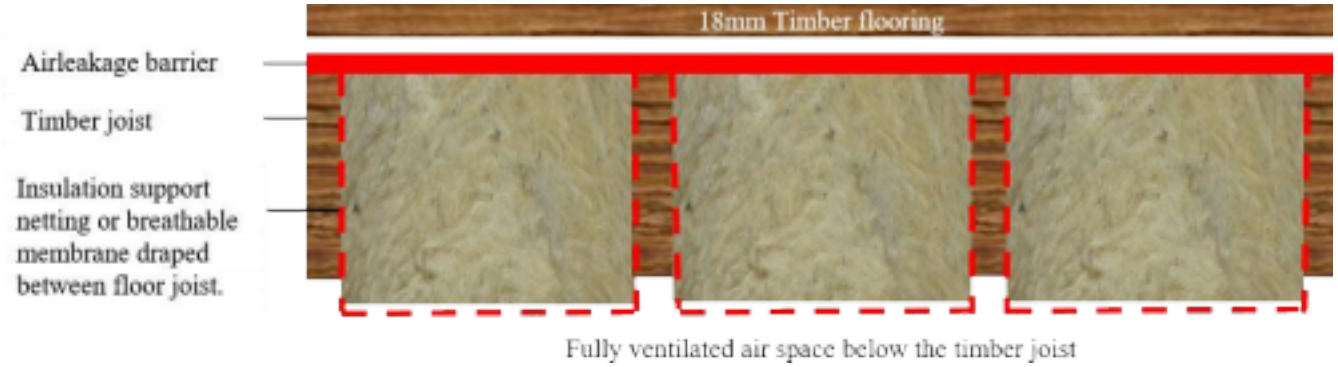
- **220mm** Knauf Earthwool OmniFit Roll **34**
- **220mm** Isover Metac Roll **34**

Application: Insulating the Ground Floor Timber Joist

220mm High performance glasswool roll 34 applied **Between** the timber joist

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.16 W/m²K



Layer	d (mm)	λ	layer λ bridge	Fraction	layer R	bridge Description
					0.170	Rsi
1	19	0.130	0.146			Flooring 2 Airtight membrane optional
3	**220**	**0.034**	**0.130**	**0.110**	**6.471**	**1.692 Glasswool Insulation Roll 34**
Rs (underfloor)					0.170	6.957
	239 mm					

Total resistance: Upper limit: 5.605 Lower limit: 5.423 Ratio: 1.033 Average: 5.514 m²K/W U value of floor construction: 0.181 W/m²K

Ground parameters:
Perimeter P: 20.00 m Wall thickness: 300mm Area A: 25.00 m² Ground type: Sand/gravel (λ = 2.0 W/m·K) P/A: 0.800 Rse: 0.04 m²K/W

U-value for ground (Ug) 1.156 U-value of floor deck (Uf) 0.181 Ventilation equivalent U-value (Ux) 0.251 U-value overall 0.161

U-Value (rounded) 0.16 W/m²K

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Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

U-Value Result 0.16 W/m²K

Simple Insulation Solutions

Timber Floor Joist Insulation

Glasswool insulation applied **Between** the ground floor timber joist.

Before we can provide a solution we need to know the following

Application: Insulating the Ground Floor Timber Joist

Question 1

220mm High performance glasswool roll 34 applied **Between** the timber joist

What is the total floor area in m2

Calculation Method: I.S. EN ISO 6946, I.S. EN ISO 13370

Question 2

U-Value Result 0.16 W/m²K

What is the total exposed perimeter wall area in lm

Question 3

What is the depth of the floor joist?
Are they 100mm, 125mm, 150mm, 180mm or 225mm?
The answer to this question will determine the insulation space available between the floor joist.

Question 4

What is the spacing/centers between the floor joist?
Are they 300mm, 400mm or 600mm centres?
The answer to this question will determine the bridging factor.

Question 5

Are you applying an airleakage barrier above the floor joist?
Yes, is the best option, airtightness reduces heat loss.

Question 6

What U value would you like to achieve? **Example: 0.21 Good 0.18 Better 0.16 Best**

NOTE: The space below the ground floor joist is typically a ventilated space. Ventilation is required in this area to reduce the risk of water and moisture damage to the floor joist. Timber floor joist are natural building materials and will continue to expand and contract over the entire lifetime of the building. Small gaps between the insulation layers and the sides of the timber joists can considerably reduce the overall thermal performance of the floor. Cold air must not be permitted to circulate on the warm side (inside) of the insulation materials applied between the floor joist. The application of an airtight membrane applied above the timber floor joist will greatly reduce the levels of cold air entering the occupied/heated space. High performance glasswool insulation materials are flexible and easy to apply making it easier to achieve a snug fit between the construction layers. Glasswool insulation materials are non-combustible with an A1 Fire rating, Glasswool insulation materials are vapour open allowing the structure to breathe freely through the construction layers. Glasswool will also provide a level of acoustic sound reduction from external noise such as traffic noise entering through the ventilated area. Glasswool insulation materials provide Thermal, Acoustic, Breathable and Fire Safe solutions.

Insulation and Associated Building Materials

- ✓ Knauf Earthwool OmniFit Roll **34**
- ✓ Superglass Timber and Rafter Roll **34**
- ✓ Isover Metac Roll **34**
- ✓ Airtight membrane, airtight tapes and airtight sealants
- ✓ Breathable membrane
- ✓ Tenax insulation support netting

For more information and pricing please call 01-8612000