

INSULATION  LESS



SHOP THE UK'S
BEST INSULATION
MATERIALS
FOR LESS

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ATTIC SPACE LOFT INSULATION

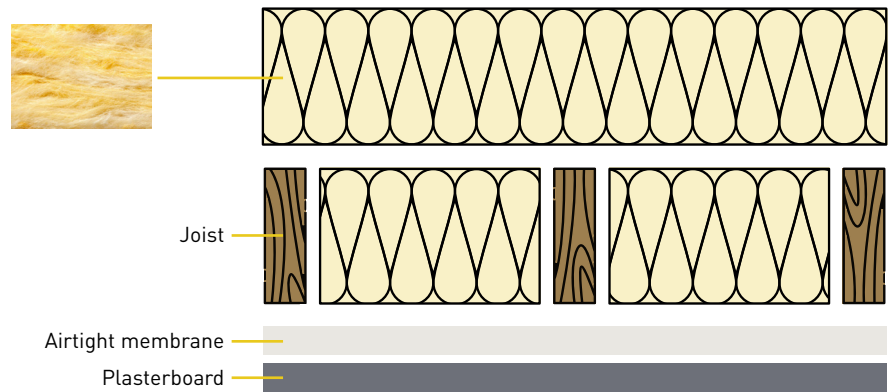
GUIDE 1

INSULATION MATERIALS REQUIRED

Glasswool insulation applied **ABOVE** the **ceiling joist**. (insulation thermal conductivity **0.044 W/mK**)



Glasswool insulation applied **BETWEEN** the **ceiling joist**. (insulation thermal conductivity **0.044 W/mK**)



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later. The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE ATTIC SPACE

Q. What is the depth of the ceiling joist?

Are they 100mm, 150mm, 175mm or 225mm?
The answer to this question will determine the insulation space available between the ceiling joist.

Q. What is the spacing/centers between the ceiling joist?

Are they 400mm centres, 600mm centres or other?
The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage/vapour control membrane below the ceiling joist?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Don't forget the tapes and sealants.

Q. Are you creating storage space within the attic space?

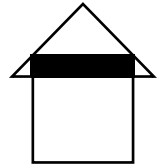
Questions before you start:

- Do you require pipe lagging?
- Do you require cold water tank jackets?
- Do you require down light covers?
- Do you require a loft ladder?
- Do you require a loft walk boards?

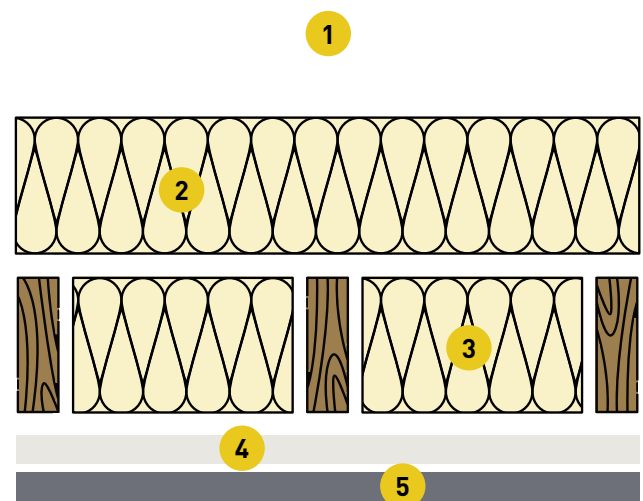
Q. What U value would you like to achieve?

- 0.16 ➤ Good
- 0.14 ➤ Better
- 0.12 ➤ Best

CEILING JOIST/ATTIC FLOOR BUILD UP



- ① Ventilated attic space above the insulation layer.
- ② Glasswool or stone wool insulation roll applied **ABOVE** the ceiling joist. (insulation thermal conductivity **0.044 W/mK**)
- ③ Glasswool or stone wool insulation roll applied **BETWEEN** the ceiling joist. (insulation thermal conductivity **0.044 W/mK**)
- ④ Airtight membrane applied **BELOW** the ceiling joist. (taped and sealed) VAPOUR CONTROL LAYER.
- ⑤ Plasterboard fixed **BELOW** the ceiling joist.



Ceiling Joist @ 400mm centres

GLASSWOOL INSULATION APPLIED BETWEEN THE CEILING JOIST

100mm

Glasswool insulation roll applied **BETWEEN** the ceiling joist. (insulation thermal conductivity **0.044 W/mK**)

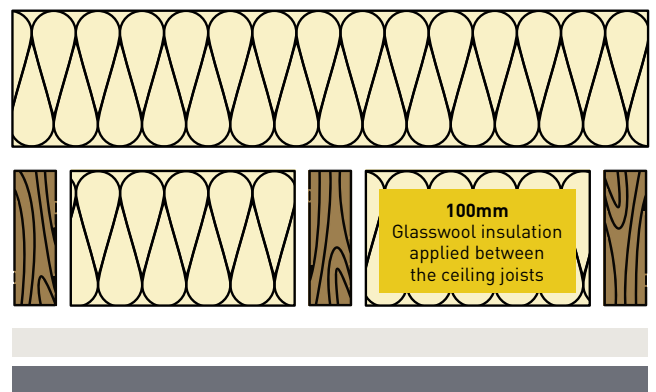
Loft Roll Glasswool Insulation Options

Knauf Earthwool Loft Roll 44
ISOVER Spacesaver Loft Roll 44

U value Guide 0.43 W/m²K

Add second layer of Glasswool insulation roll **ABOVE** the ceiling joist. (cross layered) (insulation thermal conductivity 0.044 W/mK) to achieve the below U value

Glasswool Insulation Roll	U value Guide
100mm	0.22 W/m ² K
150mm	0.17 W/m ² K
200mm	0.15 W/m ² K
250mm	0.13 W/m ² K
300mm	0.11 W/m ² K



Ceiling Joist @ 400mm centres

Loft hatch insulation thickness 100mm

U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE CEILING JOIST

150mm

Glasswool insulation roll applied BETWEEN the ceiling joist.
(insulation thermal conductivity **0.044 W/mK**)

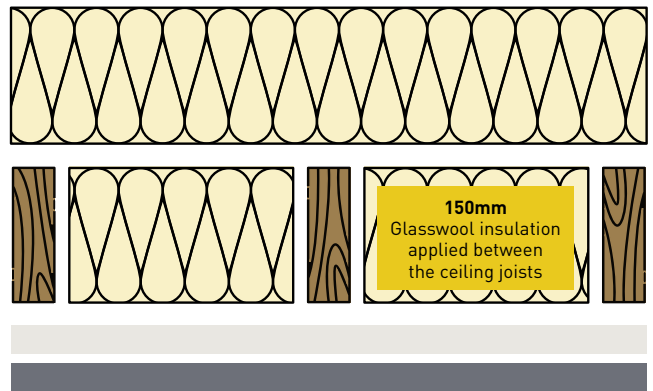
Loft Roll Glasswool Insulation Options

Knauf Earthwool Loft Roll 44
ISOVER Spacesaver Loft Roll 44

U value Guide 0.31 W/m²K

Add second layer of Glasswool insulation roll **ABOVE** the ceiling joist. (cross layered) (insulation thermal conductivity **0.044 W/mK**) to achieve the below U value

Knauf Earthwool Loft Roll 44	U value Guide
100mm	0.18 W/m²K
150mm	0.15 W/m²K
200mm	0.13 W/m²K
250mm	0.11 W/m²K
300mm	0.10 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE CEILING JOIST

170mm

Glasswool insulation roll applied **BETWEEN** the ceiling joist. (insulation thermal conductivity **0.044 W/mK**)

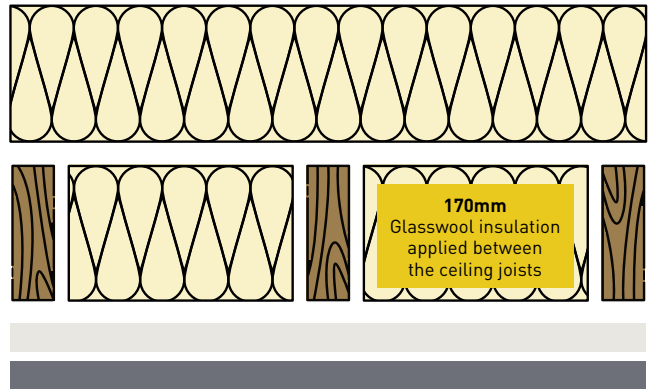
Loft Roll Glasswool Insulation Options

Knauf Earthwool Loft Roll 44
ISOVER Spacesaver Loft Roll 44

U value Guide 0.24 W/m²K

Add second layer of Glasswool insulation roll **ABOVE** the ceiling joist. (cross layered) (insulation thermal conductivity **0.044 W/mK**) to achieve the below U value

Knauf Earthwool Loft Roll 44	U value Guide
100mm	0.15 W/m²K
150mm	0.13 W/m²K
200mm	0.11 W/m²K
250mm	0.10 W/m²K
300mm	0.09 W/m²K



Ceiling Joist @ 400mm centres

Loft hatch insulation thickness 100mm

U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE CEILING JOIST

200mm

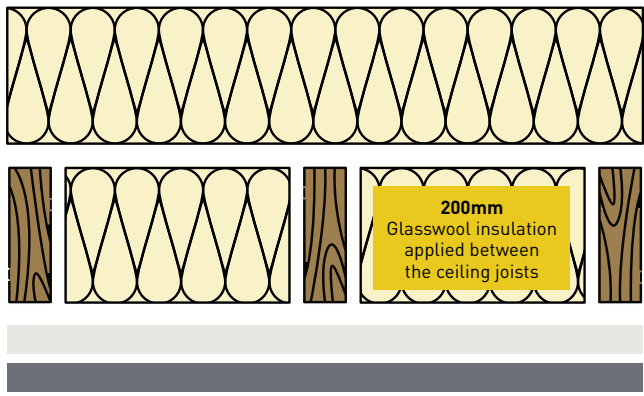
Glasswool insulation roll applied **BETWEEN** the ceiling joist. (insulation thermal conductivity **0.044 W/mK**)

Loft Roll Glasswool Insulation Options
 Knauf Earthwool Loft Roll 44
 ISOVER Spacesaver Loft Roll 44

U value Guide 0.24 W/m²K

Add second layer of Glasswool insulation roll **ABOVE** the ceiling joist. (cross layered) (insulation thermal conductivity **0.044 W/mK**) to achieve the below U value

Knauf Earthwool Loft Roll 44	U value Guide
100mm	0.15 W/m²K
150mm	0.13 W/m²K
200mm	0.11 W/m²K
250mm	0.10 W/m²K
300mm	0.09 W/m²K



Ceiling Joist @ 400mm centres

Loft hatch insulation thickness 100mm

U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

KNAUF INSULATION

EARTHWOOL LOFT ROLL 44



Knauf Earthwool Loft Roll 44 (Combi-cut)

Suitable for use in the attic space between and above ceiling joist.

Combi-cut has the flexibility to be used between 400mm and 600mm ceiling joist centres.

Insulation thermal conductivity **0.044 W/mK**.

Glasswool insulation is:

Thermal, Acoustic, Breathable
& Fire safe / Non combustible.

Knauf Earthwool Loft Roll 44	Price per m ² £	Price per roll £
200mm Width 1160mm Length 5.02mtr m ² per roll 5.93		
170mm Width 1160mm Length 8.05mtr m ² per roll 8.01		
150mm Width 1160mm Length 8.05mtr m ² per roll 9.18		
100mm Width 1160mm Length 12.18mtr m ² per roll 13.89		

PRODUCT SUGGESTIONS

ISOVER INSULATION

SPACE SAVER ROLL 44



ISOVER Spacesaver Combi-Cut
 Suitable for use in the attic space between and above ceiling joist.

Ready-cut suitable to be used between 400mm or 600mm ceiling joist centres.

Insulation thermal conductivity **0.044 W/mK.**

Glasswool insulation is:

Thermal, Acoustic, Breathable & Fire safe / Non combustible.

Spacesaver Combi-Cut Roll	Price per m ² £	Price per roll £
200mm to suit 400/600mm centres Width 3 x 386mm Length 3.880mtr m2 per roll 6.03		
170mm to suit 400/600mm centres Width 2 x 580mm Length 3.880mtr m2 per roll 8.15		
150mm to suit 400/600mm centres Width 3 x 386mm Length 6.030mtr m2 per roll 9.34		
100mm to suit 400/600mm centres Width 2 x 5.80mm Length 9.170mtr m2 per roll 14.13		

MATERIALS LIST

- › Roof ventilation
- › Pipe lagging (+ tape)
- › Cold water tank jackets
- › Chipboard flooring
- › Insulated loft access hatch
- › Insulated loft access hood
- › Insulation applied between and above the ceiling joist
- › Airtight down light covers
- › Airtight membrane below the ceiling joist (+ staples)
- › Airtight tapes and sealants
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



DORMER CHEEK INSULATION GUIDE 1

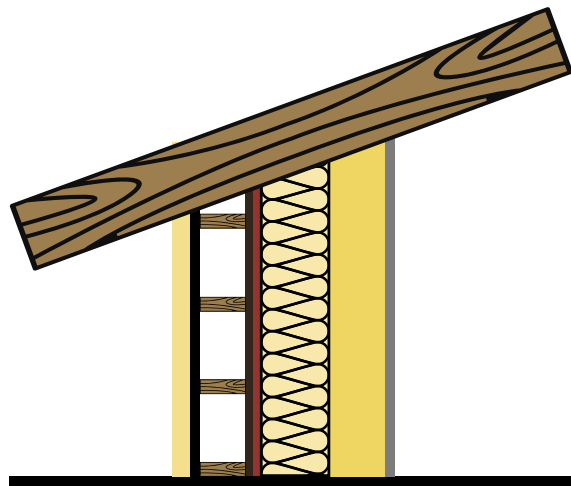
INSULATION  LESS

INSULATION MATERIALS REQUIRED

High performance glasswool insulation applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.034 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed to **THE INTERNAL FACE OF THE TIMBER STUDS.**



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later. The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE DORMER CHEEK

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 175mm or other?
The answer to this question will determine the insulation space available between the timber studs.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?
The answer to this question will determine the thermal bridging factor.

Q. Are you applying a fully sealed airleakage/vapour control membrane to the internal face of the timber studs?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

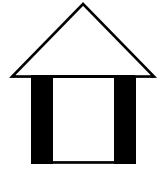
Q. Are you applying an insulated plasterboard to the internal face of the timber studs?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber studs.

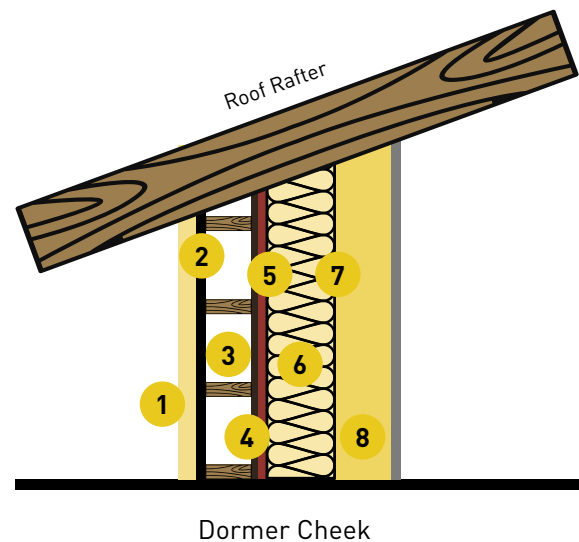
Q. What U value would you like to achieve?

- 0.21 > Good
- 0.18 > Better
- 0.15 > Best

DORMER CHEEK - BUILD-UP



- ① External render.
- ② Fibre cement render board.
- ③ 50mm Cross flow **VENTILATED** air space. (battens)
- ④ **Breathable** wall membrane.
- ⑤ Plywood/OSB board.
- ⑥ High performance glasswool insulation applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.034 W/mK**)
- ⑦ **Airtight membrane** applied to the **INTERNAL FACE OF THE TIMBER STUDS**. (taped and sealed)
- ⑧ **PIR insulated plasterboard** fixed to the **internal face** of the timber studs.



GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

100mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

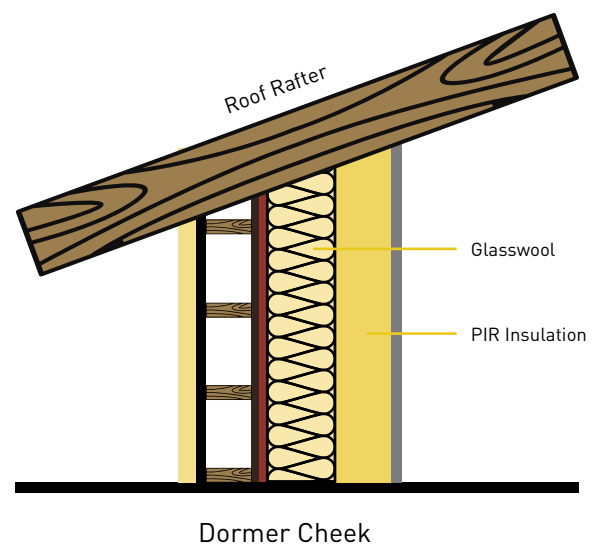
High Performance Glasswool Insulation Options

100mm Knauf Earthwool OmniFit Stud Roll 34
100mm ISOVER Metac Roll 34
Timber studs @ 400mm centres

U value Guide 0.37 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.25 W/m ² K
50.5mm	0.22 W/m ² K
52.5mm	0.22 W/m ² K
62.5mm	0.20 W/m ² K
72.5mm	0.18 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

150mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

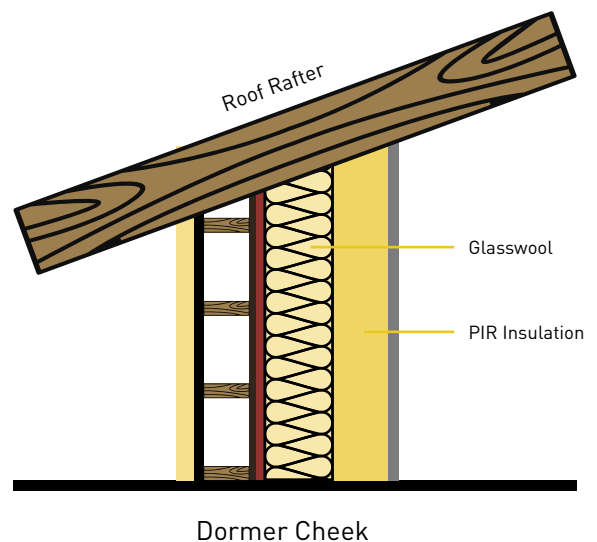
High Performance Glasswool Insulation Options

150mm Knauf Earthwool OmniFit Stud Roll 34
150mm ISOVER Metac Roll 34
Timber studs @ 400mm centres

U value Guide 0.26 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.20 W/m ² K
50.5mm	0.18 W/m ² K
52.5mm	0.17 W/m ² K
62.5mm	0.16 W/m ² K
72.5mm	0.15 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

180mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

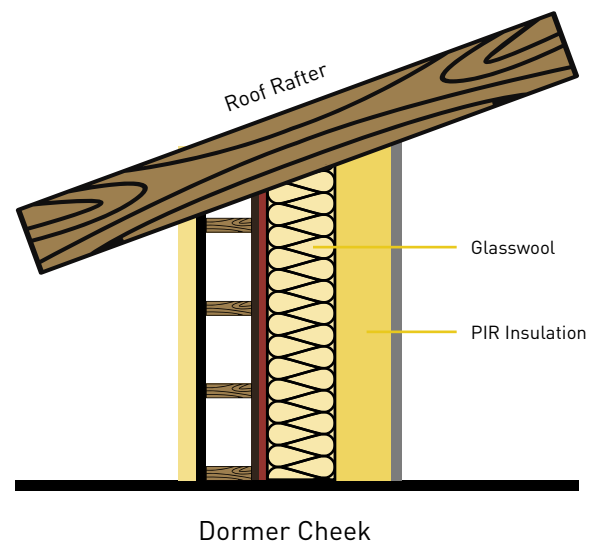
High Performance Glasswool Insulation Options

180mm Knauf Earthwool OmniFit Stud Roll 34
180mm ISOVER Metac Roll 34
Timber studs @ 400mm centres

U value Guide 0.22 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.17 W/m ² K
50.5mm	0.16 W/m ² K
52.5mm	0.15 W/m ² K
62.5mm	0.14 W/m ² K
72.5mm	0.13 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

KNAUF INSULATION

EARTHWOOL OMNIFIT STUD ROLL 34



Knauf Earthwool OmniFit Stud Roll 34
 Suitable for use in roof rafters and timber stud walls.

Available in a solid roll.

Insulation thermal conductivity **0.034 W/mK**.

Knauf Earthwool OmniFit Stud Roll 34 is:
 Thermal, Acoustic, Breathable & Non combustible.

Knauf Earthwool OmniFit Stud Roll 34	Price per m ² £	Price per roll £
220mm Width 1140mm Length 2.50mtr m ² per roll 3.00		
180mm Width 1200mm Length 3.00mtr m ² per roll 3.60		
150mm Width 1200mm Length 3.50mtr m ² per roll 4.20		
140mm Width 1200mm Length 4.20mtr m ² per roll 5.04		
100mm Width 1200mm Length 5.20mtr m ² per roll 6.24		

PRODUCT SUGGESTIONS

KNAUF INSULATION

FRAMETHERM ROLL 34



ISOVER Metac Roll 34

Suitable for use in roof rafters, roof joist and timber stud walls.

150mm and 180mm is available ready-cut 3 x 400mm to suit 400mm rafter centres.

Solid rolls are also available.

Insulation thermal conductivity **0.034 W/mK**.

ISOVER Metac Roll 34 is:

Thermal, Acoustic, Breathable & Non combustible.

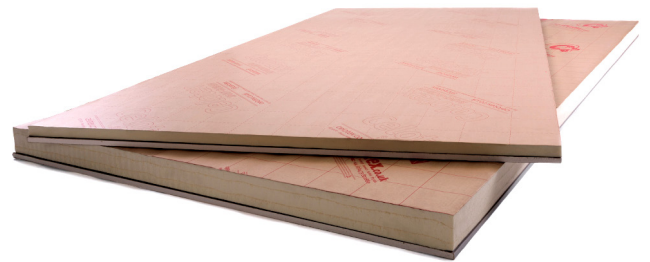
Isover Metac Roll 34	Price per m ² £	Price per roll £
220mm Width 1200mm Length 2.90mtr m ² per roll 3.48 Solid Roll		
180mm Width 1200mm Length 3.40mtr m ² per roll 4.08 Solid Roll or split x3		
150mm Width 1200mm Length 4.10mtr m ² per roll 4.92 Solid Roll or split x3		
100mm Width 1200mm Length 6.00mtr m ² per roll 7.20 Solid Roll		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard
37.5mm	1.20
42.5mm	1.43
50mm	1.79
52.5mm	1.88
62.5mm	2.33
72.5mm	2.79
82.5mm	3.24
92.5mm	3.70
102.5mm	4.15
112.5mm	4.61



PIR Insulation thickness 25mm/30mm

Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +

Thermal conductivity 0.022 W/mK

12.5mm Plasterboard

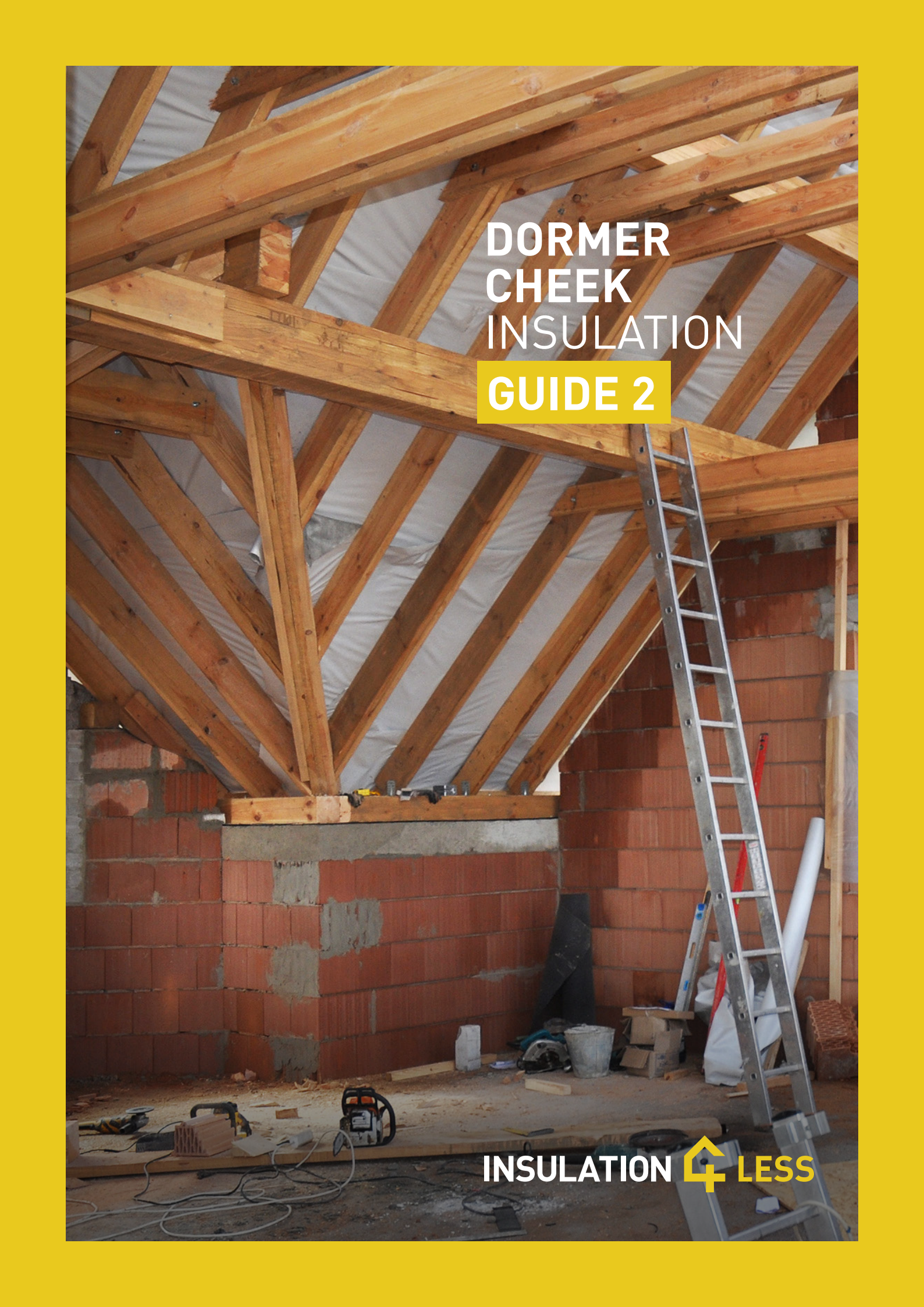
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Timber studs
- › Timber battens (+ fixings)
- › Insulation applied between the timber studs
- › Airtight membrane applied to the internal face of the timber studs (+ staples)
- › Airtight tapes and sealants
- › Insulated plasterboards applied to the internal face of the timber studs (+ fixings)
- › 12mm External Render board (fixed to timber battens)
- › Breathable membrane
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



**DORMER
CHEEK
INSULATION
GUIDE 2**

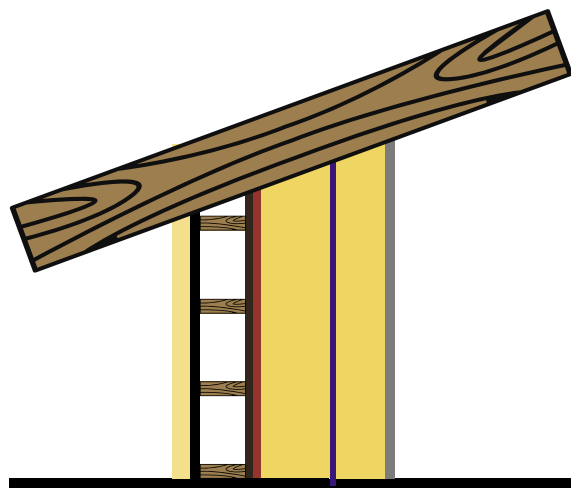
INSULATION  LESS

INSULATION MATERIALS

Polyisocyanurate PIR foil faced rigid insulation boards applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed to **THE INTERNAL FACE OF THE TIMBER STUDS**.



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later. The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE DORMER CHEEK

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 175mm or other?
The answer to this question will determine the insulation space available between the timber studs.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?
The answer to this question will determine the thermal bridging factor.

Q. Are you applying a fully sealed airleakage/vapour control membrane to the internal face of the timber studs?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

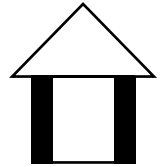
Q. Are you applying an insulated plasterboard to the internal face of the timber studs?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber studs.

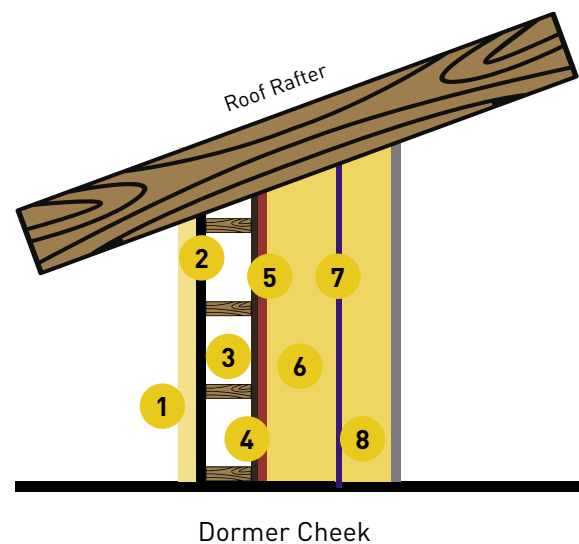
Q. What U value would you like to achieve?

- 0.21 > Good
- 0.18 > Better
- 0.15 > Best

DORMER CHEEK INSULATION APPLIED BETWEEN AND TO THE INTERNAL FACE OF STUDS



- ① External render.
- ② Fibre cement render board.
- ③ 50mm Cross flow **VENTILATED** air space. (battens)
- ④ **Breathable** wall membrane.
- ⑤ Plywood/OSB board.
- ⑥ Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (thermal conductivity **0.022 W/mK**)
- ⑦ **Airtight membrane** applied to the **INTERNAL FACE OF THE TIMBER STUDS**. (taped and sealed)
- ⑧ **PIR insulated plasterboard** fixed to the **internal face** of the timber studs.



PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

80mm

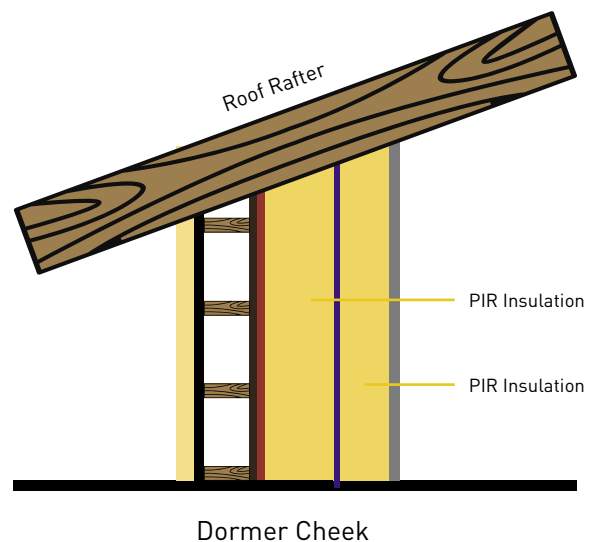
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.34 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.24 W/m ² K
50.5mm	0.21 W/m ² K
52.5mm	0.20 W/m ² K
62.5mm	0.19 W/m ² K
72.5mm	0.17 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

100mm

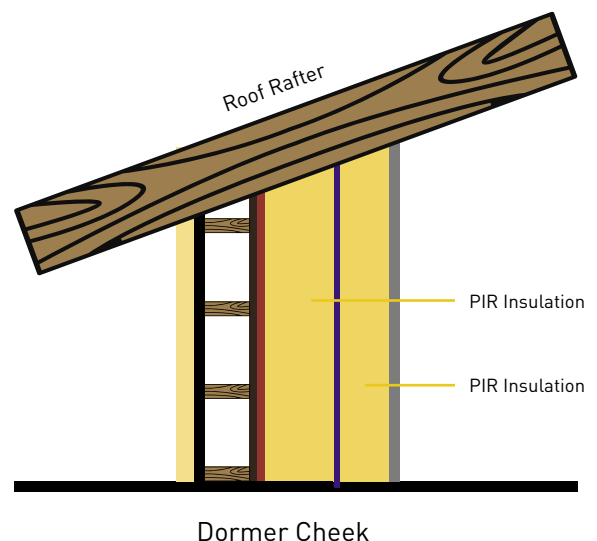
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.28 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.21 W/m ² K
50.5mm	0.18 W/m ² K
52.5mm	0.18 W/m ² K
62.5mm	0.17 W/m ² K
72.5mm	0.15 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

125mm

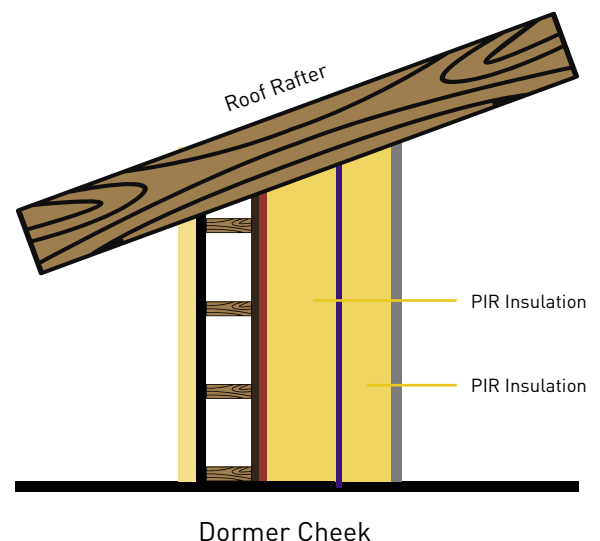
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.23 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m ² K
50.5mm	0.16 W/m ² K
52.5mm	0.16 W/m ² K
62.5mm	0.15 W/m ² K
72.5mm	0.14 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

150mm

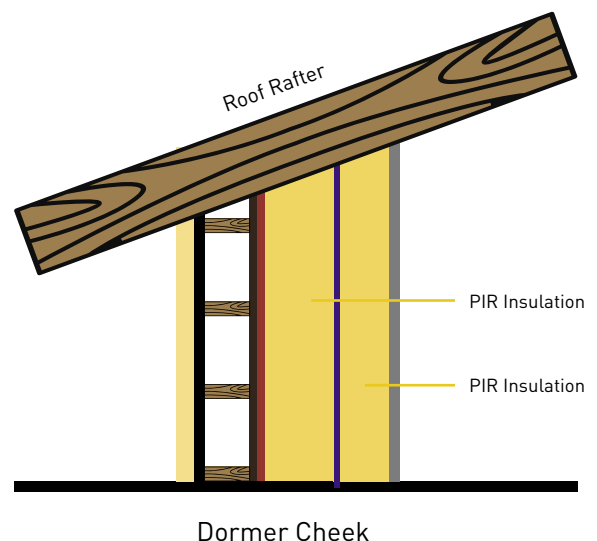
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.20 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

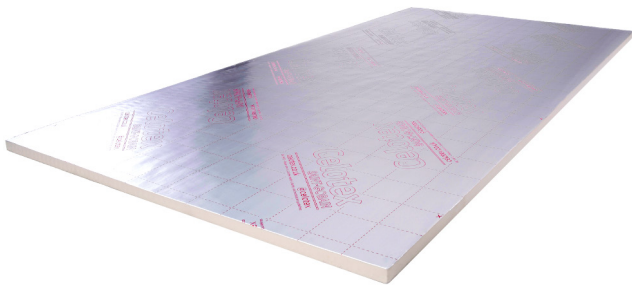
PIR insulated plasterboard	U value Guide
37.5mm	0.16 W/m ² K
50.5mm	0.14 W/m ² K
52.5mm	0.14 W/m ² K
62.5mm	0.13 W/m ² K
72.5mm	0.12 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED POLYISOCYANURATE (PIR) INSULATION



Foil Faced Polyisocyanurate (PIR) Insulation

Suitable for use in Timber Studs.

Sheet size 1200mm x 2400mm.

Rigid board.

Insulation thermal conductivity
0.022 W/mK.

Foil Faced Polyisocyanurate (PIR)	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm

Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +

Thermal conductivity 0.022 W/mK

12.5mm Plasterboard

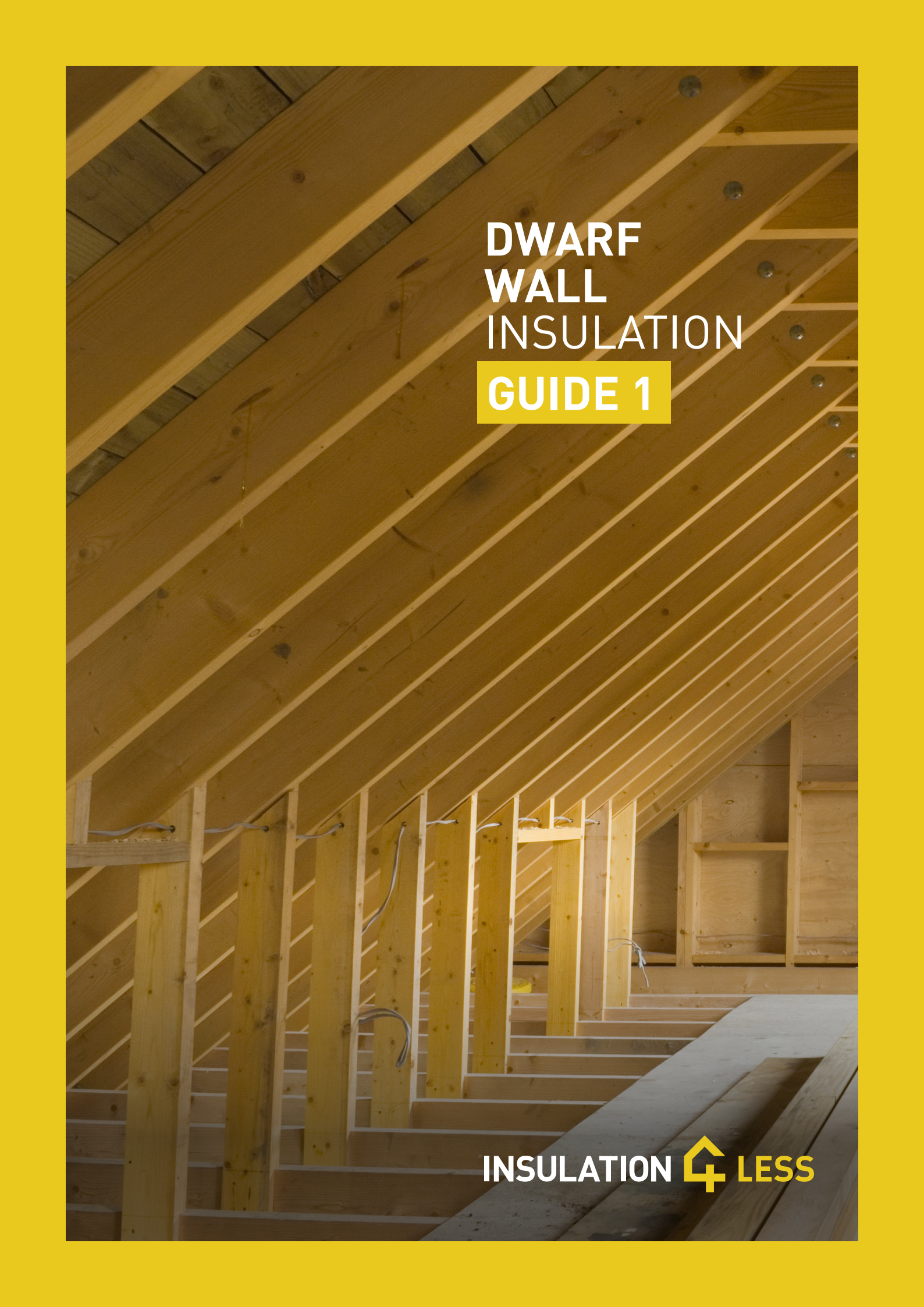
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Timber studs (dwarf wall)
- › Insulation applied between the timber studs
- › Airtight membrane applied to the internal face of the timber studs (+ staples)
- › Airtight tapes and sealants
- › Down light covers (behind dwarf wall insulated flat ceiling)
- › Insulated plasterboards applied to the internal face of the timber studs (+ fixings)
- › Insulated airtight access hatch (entry to storage space behind dwarf wall)
- › Rigid insulation applied over floor joist (for storage space)
- › 18/22mm Chipboard flooring (applied over rigid insulation storage space)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



DWARF WALL INSULATION GUIDE 1

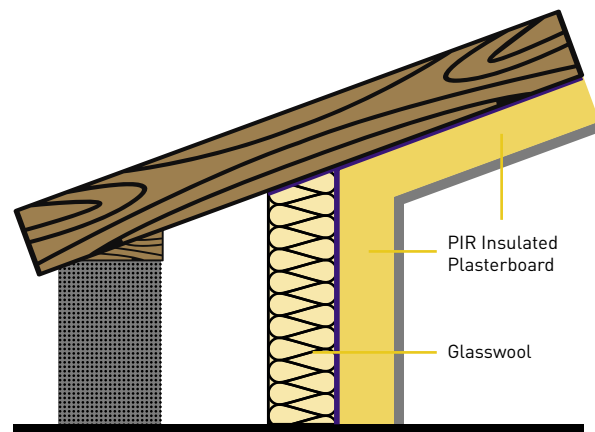
INSULATION  LESS

INSULATION MATERIALS REQUIRED

High performance glasswool insulation applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.034 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed to **THE INTERNAL FACE OF THE TIMBER STUDS.**



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later. The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE DWARF WALL

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 175mm or other?
The answer to this question will determine the insulation space available between the timber studs.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?
The answer to this question will determine the thermal bridging factor.

Q. Are you applying a fully sealed airleakage/vapour control membrane to the internal face of the timber studs?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

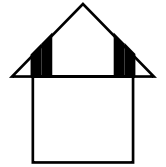
Q. Are you applying an insulated plasterboard to the internal face of the timber studs?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber studs.

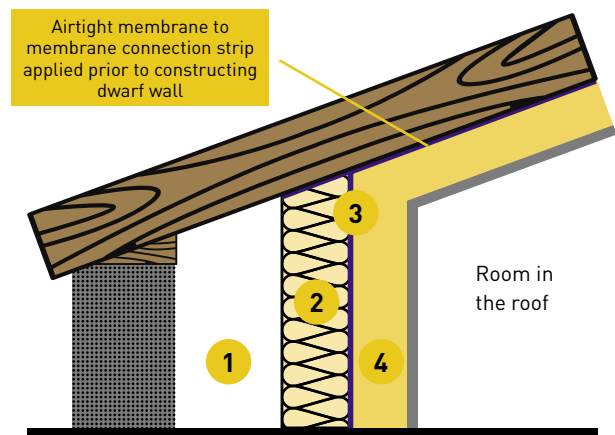
Q. What U value would you like to achieve?

- 0.21 > Good
- 0.18 > Better
- 0.15 > Best

DWARF WALL BUILD UP



- ① Un-heated space behind the timber stud wall.
- ② High performance glasswool insulation applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.034 W/mK**)
- ③ **Airtight membrane** applied to the **INTERNAL FACE OF THE TIMBER STUDS**. (taped and sealed)
- ④ **Polyisocyanurate PIR** insulated plasterboard fixed to the **internal face** of the timber studs.



GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

100mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

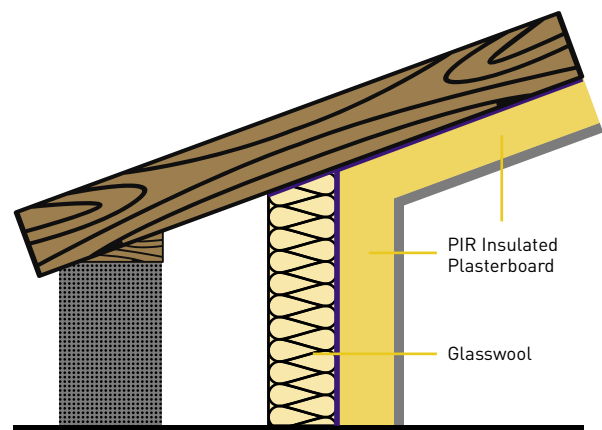
High Performance Glasswool Insulation Options

- 100mm Knauf Earthwool OmniFit Stud Roll 34
- 100mm ISOVER Metac Roll 34
- Timber studs @ 400mm centres

U value Guide 0.32 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.23 W/m²K
50.5mm	0.20 W/m²K
52.5mm	0.20 W/m²K
62.5mm	0.18 W/m²K
72.5mm	0.17 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

150mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

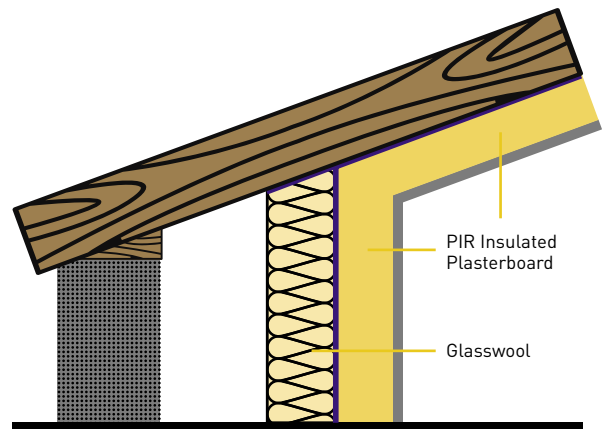
High Performance Glasswool Insulation Options

- 150mm Knauf Earthwool OmniFit Stud Roll 34
- 150mm ISOVER Metac Roll 34
- Timber studs @ 400mm centres

U value Guide 0.23 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m²K
50.5mm	0.16 W/m²K
52.5mm	0.16 W/m²K
62.5mm	0.15 W/m²K
72.5mm	0.14 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER STUDS

180mm

High performance glasswool insulation applied **BETWEEN** the timber studs. (Insulation thermal conductivity **0.034 W/mK**)

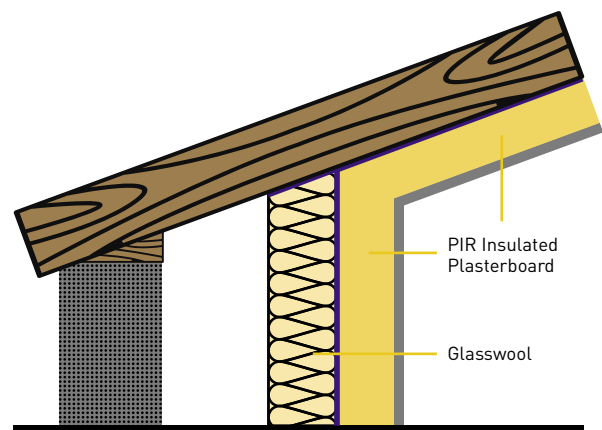
High Performance Glasswool Insulation Options

- 180mm Knauf Earthwool OmniFit Stud Roll 34
- 180mm ISOVER Metac Roll 34
- Timber studs @ 400mm centres

U value Guide 0.20 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.16 W/m²K
50.5mm	0.15 W/m²K
52.5mm	0.14 W/m²K
62.5mm	0.14 W/m²K
72.5mm	0.13 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

KNAUF INSULATION

EARTHWOOL OMNIFIT STUD ROLL 34



Knauf Earthwool OmniFit Stud Roll 34
 Suitable for use in roof rafters and timber stud walls.

Available in a solid roll.

Insulation thermal conductivity **0.034 W/mK**.

Knauf Earthwool OmniFit Stud Roll 34 is:
 Thermal, Acoustic, Breathable & Non combustible.

Knauf Earthwool OmniFit Stud Roll 34	Price per m ² £	Price per roll £
220mm Width 1140mm Length 2.50mtr m ² per roll 3.00		
180mm Width 1200mm Length 3.00mtr m ² per roll 3.60		
150mm Width 1200mm Length 3.50mtr m ² per roll 4.20		
140mm Width 1200mm Length 4.20mtr m ² per roll 5.04		
100mm Width 1200mm Length 5.20mtr m ² per roll 6.24		

PRODUCT SUGGESTIONS

ISOVER INSULATION

METAC ROLL 34



ISOVER Metac Roll 34

Suitable for use in roof rafters, roof joist and timber stud walls.

150mm and 180mm is available ready-cut 3 x 400mm to suit 400mm rafter centres.

Solid rolls are also available.

Insulation thermal conductivity **0.034 W/mK**.

ISOVER Metac Roll 34 is:

Thermal, Acoustic, Breathable & Non combustible.

Isover Metac Roll 34	Price per m ² £	Price per roll £
220mm Width 1200mm Length 2.90mtr m2 per roll 3.48 Solid Roll		
180mm Width 1200mm Length 3.40mtr m2 per roll 4.08 Solid Roll or split x3		
150mm Width 1200mm Length 4.10mtr m2 per roll 4.92 Solid Roll or split x3		
100mm Width 1200mm Length 6.00mtr m2 per roll 7.20 Solid Roll		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm
Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +
Thermal conductivity 0.022 W/mK

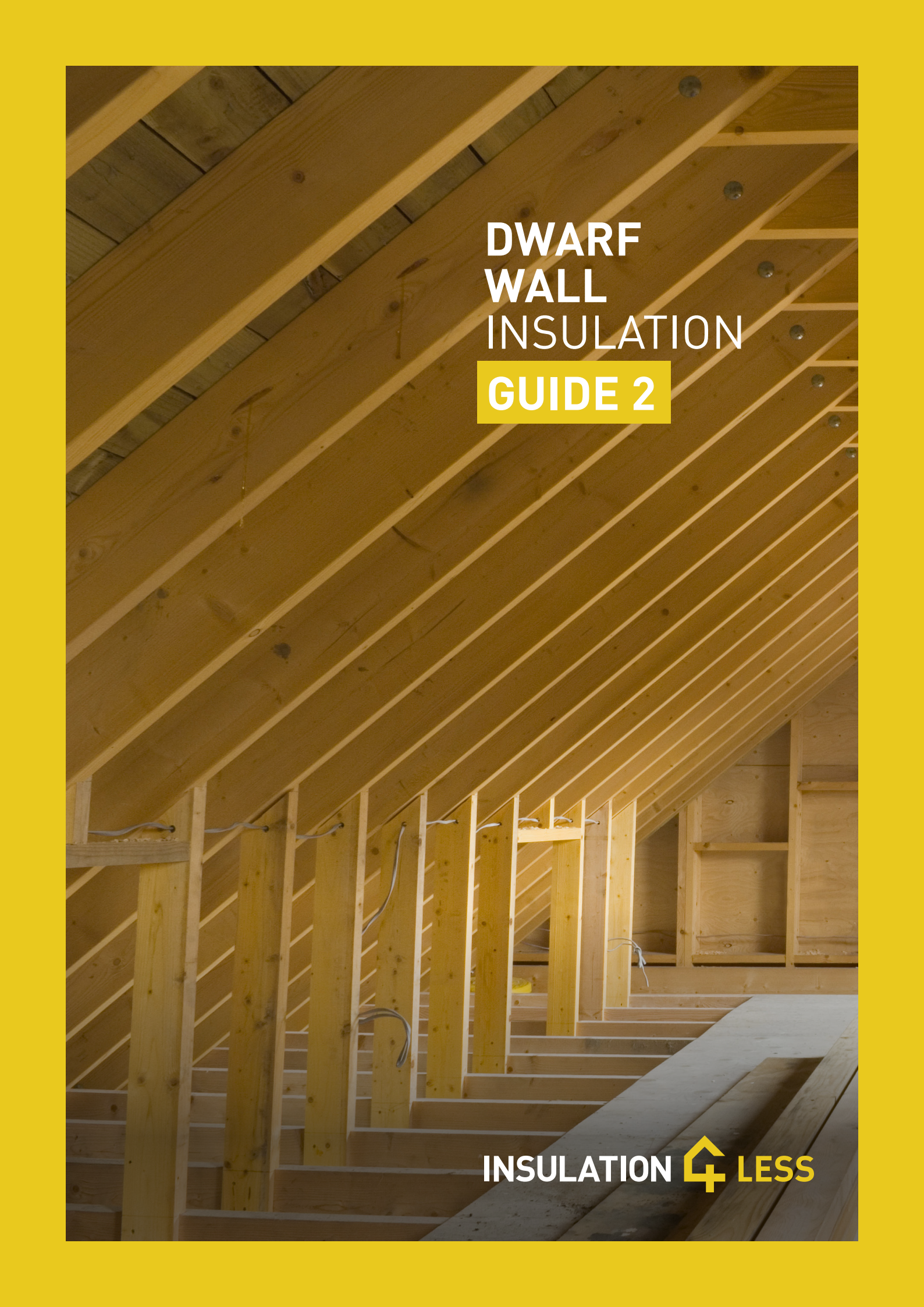
12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Timber studs (dwarf wall)
- › Insulation applied between the timber studs
- › Airtight membrane applied to the internal face of the timber studs (+ staples)
- › Airtight tapes and sealants
- › Down light covers (behind dwarf wall insulated flat ceiling)
- › Insulated plasterboards applied to the internal face of the timber studs (+ fixings)
- › Insulated airtight access hatch (entry to storage space behind dwarf wall)
- › Rigid insulation applied over floor joist (for storage space)
- › 18/22mm Chipboard flooring (applied over rigid insulation storage space)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



DWARF WALL INSULATION GUIDE 2

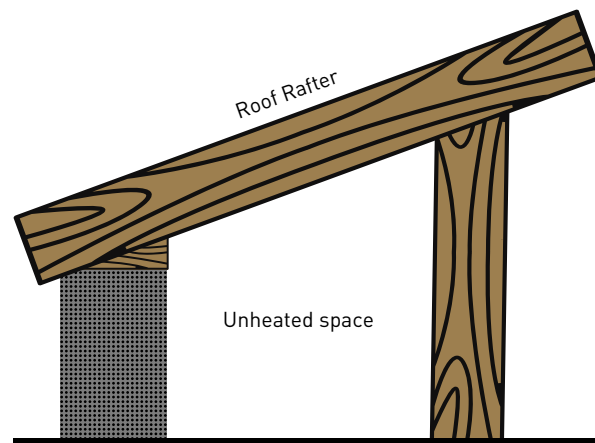
INSULATION  LESS

INSULATION MATERIALS

Polyisocyanurate (PIR) foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed to **THE INTERNAL FACE OF THE TIMBER STUDS.**



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE DWARF WALL

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 175mm or other?
The answer to this question will determine the insulation space available between the timber studs.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?
The answer to this question will determine the thermal bridging factor.

Q. Are you applying a fully sealed airleakage/vapour control membrane to the internal face of the timber studs?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

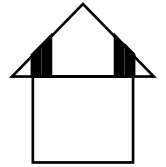
Q. Are you applying an insulated plasterboard to the internal face of the timber studs?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber studs.

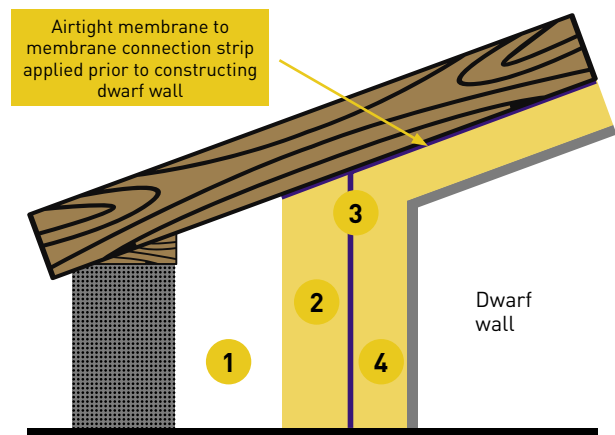
Q. What U value would you like to achieve?

- 0.21 > Good
- 0.18 > Better
- 0.15 > Best

DWARF WALL BUILD UP



- ① Un-heated space behind the timber stud wall.
- ② Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)
- ③ **Airtight membrane** applied to the **INTERNAL FACE OF THE TIMBER STUDS**. (taped and sealed)
- ④ **Polyisocyanurate PIR** insulated plasterboard fixed to the **internal face** of the timber studs.



PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

80mm

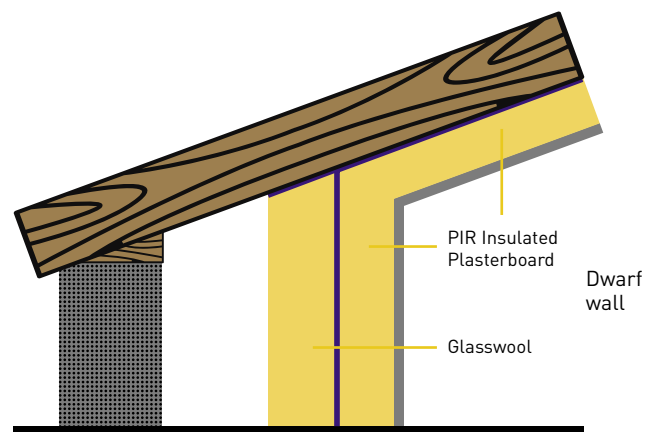
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.29 W/m²K

Add PIR insulated plasterboards to the internal face of studs

PIR insulated plasterboard	U value Guide
37.5mm	0.22 W/m ² K
50.5mm	0.19 W/m ² K
52.5mm	0.19 W/m ² K
62.5mm	0.17 W/m ² K
72.5mm	0.16 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

100mm

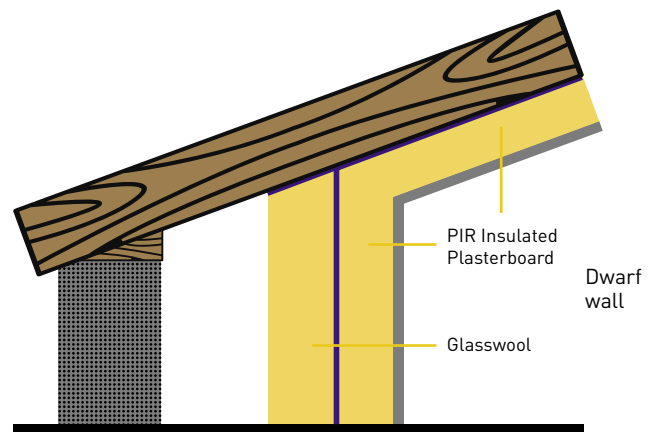
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.25 W/m²K

Add PIR insulated plasterboards to the internal face of studs

PIR insulated plasterboard	U value Guide
37.5mm	0.19 W/m ² K
50.5mm	0.17 W/m ² K
52.5mm	0.17 W/m ² K
62.5mm	0.15 W/m ² K
72.5mm	0.14 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

125mm

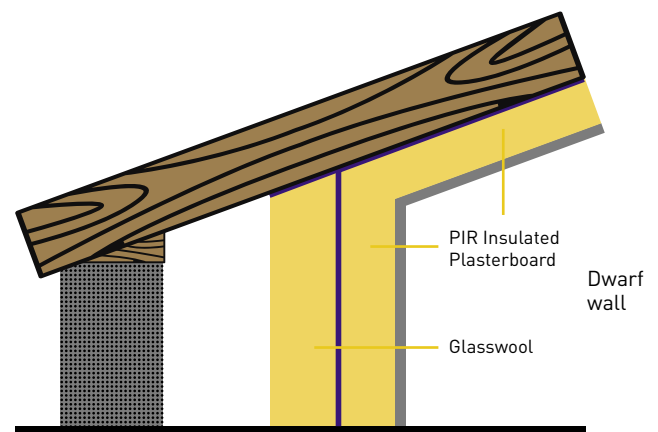
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.21 W/m²K

Add PIR insulated plasterboards to the **internal face of studs**

PIR insulated plasterboard	U value Guide
37.5mm	0.16 W/m ² K
50.5mm	0.15 W/m ² K
52.5mm	0.15 W/m ² K
62.5mm	0.14 W/m ² K
72.5mm	0.13 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER STUDS

150mm

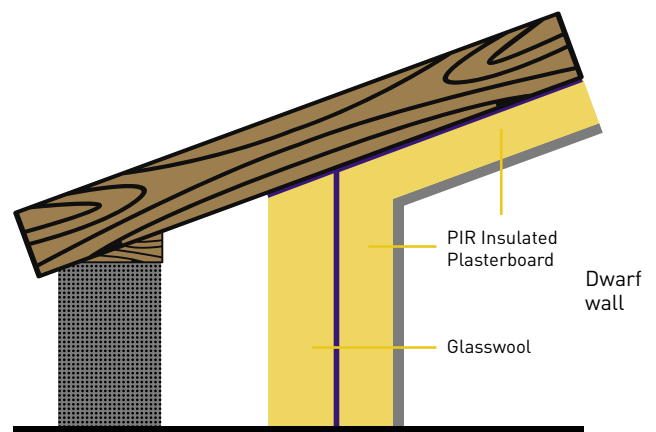
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber studs. (insulation thermal conductivity **0.022 W/mK**)

Timber Studs @ 400mm centres

U value Guide 0.18 W/m²K

Add PIR insulated plasterboards to the **internal face of studs**

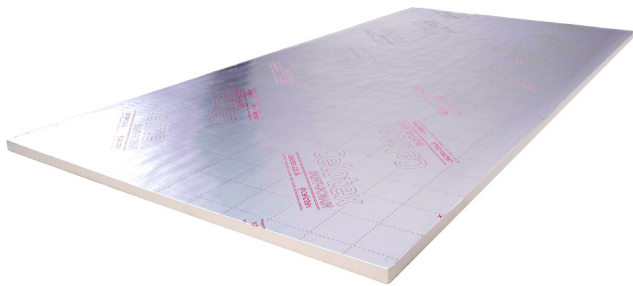
PIR insulated plasterboard	U value Guide
37.5mm	0.15 W/m ² K
50.5mm	0.13 W/m ² K
52.5mm	0.13 W/m ² K
62.5mm	0.12 W/m ² K
72.5mm	0.12 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED POLYISOCYANURATE (PIR) INSULATION



Foil Faced Polyisocyanurate (PIR) Insulation

Suitable for use in Timber Studs.

Sheet size 1200mm x 2400mm.

Rigid board.

Insulation thermal conductivity
0.022 W/mK.

Foil Faced Polyisocyanurate (PIR)	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm
Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +
Thermal conductivity 0.022 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Timber studs (dwarf wall)
- › Insulation applied between the timber studs
- › Airtight membrane applied to the internal face of the timber studs (+ staples)
- › Airtight tapes and sealants
- › Down light covers (behind dwarf wall insulated flat ceiling)
- › Insulated plasterboards applied to the internal face of the timber studs (+ fixings)
- › Insulated airtight access hatch (entry to storage space behind dwarf wall)
- › Rigid insulation applied over floor joist (for storage space)
- › 18/22mm Chipboard flooring (applied over rigid insulation storage space)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)

FLAT ROOF - COLD ROOF INSULATION

GUIDE 1

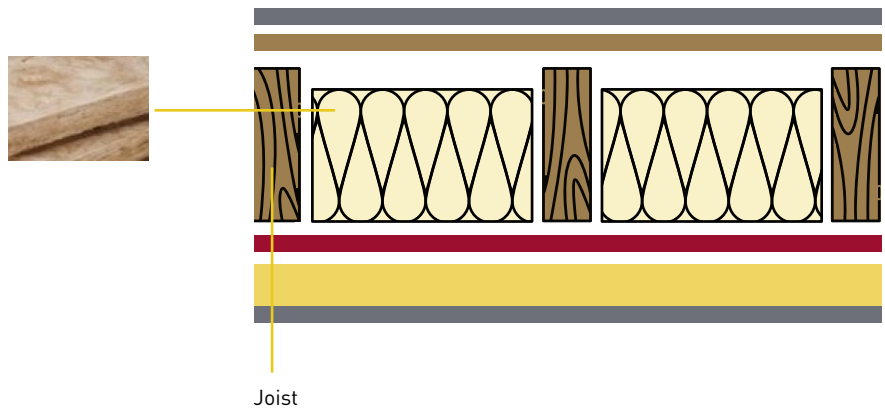


INSULATION MATERIALS

High performance glasswool insulation applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.034 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed **BELOW** the **timber joist**.



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING A FLAT ROOF - COLD ROOF

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 180mm, 225mm or other?

The answer to this question will determine the insulation space available between the timber joist. The deeper the timber joist the greater the insulation choice.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage barrier/vapour control membrane below the timber joist?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the timber joist?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber joist.

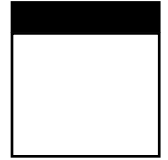
Q. What U value would you like to achieve?

0.21 > Good

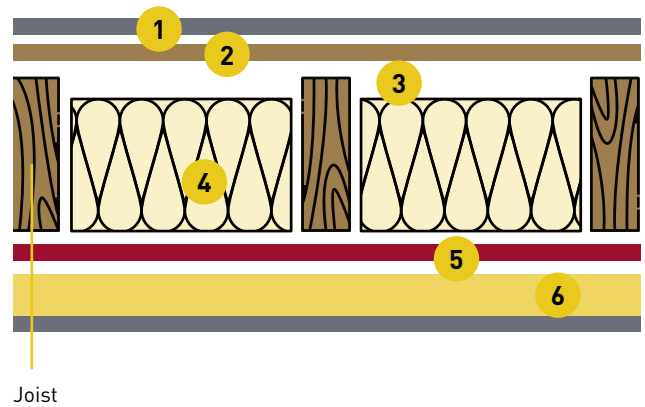
0.18 > Better

0.15 > Best

FLAT ROOF - COLD ROOF BUILD-UP



- ① Watertight layer.
- ② Plywood or OSB roof deck.
- ③ 50/75mm Ventilated air space - Cross flow ventilation.
- ④ High performance glasswool insulation applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.034 W/mK**)
- ⑤ **Airtight membrane** applied **BELOW** the timber joist. (taped and sealed) (VAPOUR CONTROL LAYER)
- ⑥ **Polyisocyanurate PIR insulated plasterboard** fixed below the timber joist.



GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER JOIST

100mm

High performance glasswool insulation applied **BETWEEN** the timber joist. (Insulation thermal conductivity **0.034 W/mK**)

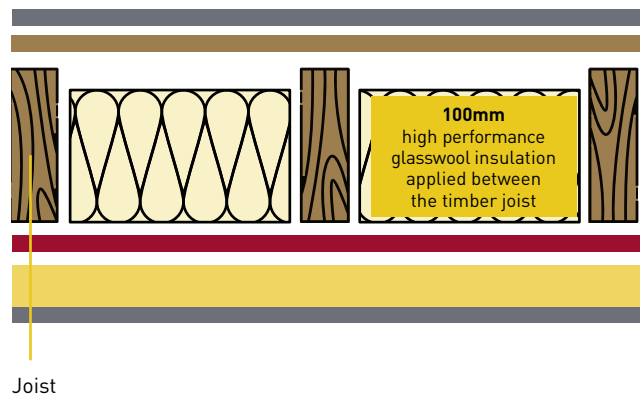
High Performance Glasswool Insulation Options

- 100mm Knauf Earthwool OmniFit Stud Roll 34
- 100mm ISOVER Metac Roll 34
- Timber joist @ 400mm centres

U value Guide 0.39 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.26 W/m²K
50.5mm	0.23 W/m²K
52.5mm	0.22 W/m²K
62.5mm	0.20 W/m²K
72.5mm	0.18 W/m²K
82.5mm	0.17 W/m²K
92.5mm	0.16 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER JOIST

150mm

High performance glasswool insulation applied **BETWEEN** the timber joist. (Insulation thermal conductivity **0.034 W/mK**)

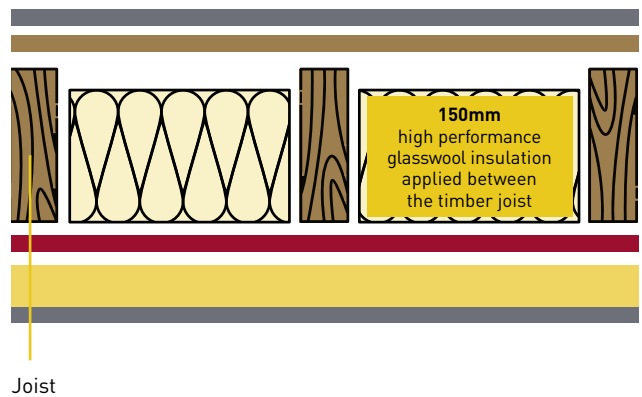
High Performance Glasswool Insulation Options

- 150mm Knauf Earthwool OmniFit Stud Roll 34
- 150mm ISOVER Metac Roll 34
- Timber joist @ 400mm centres

U value Guide 0.27 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.20 W/m²K
50.5mm	0.18 W/m²K
52.5mm	0.18 W/m²K
62.5mm	0.16 W/m²K
72.5mm	0.15 W/m²K
82.5mm	0.14 W/m²K
92.5mm	0.13 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER JOIST

180mm

High performance glasswool insulation applied **BETWEEN** the timber joist. (Insulation thermal conductivity **0.034 W/mK**)

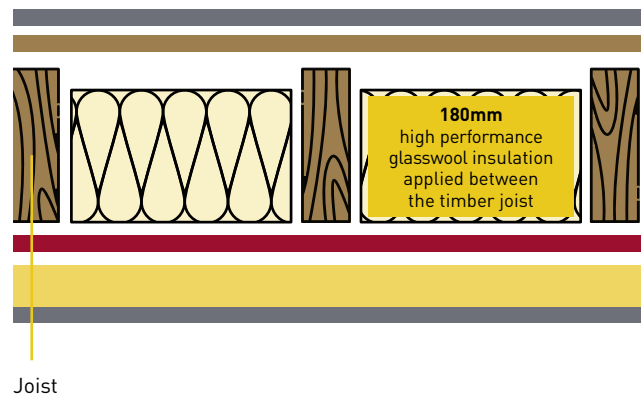
High Performance Glasswool Insulation Options

- 180mm Knauf Earthwool OmniFit Stud Roll 34
- 180mm ISOVER Metac Roll 34
- Timber joist @ 400mm centres

U value Guide 0.23 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m²K
50.5mm	0.16 W/m²K
52.5mm	0.16 W/m²K
62.5mm	0.15 W/m²K
72.5mm	0.14 W/m²K
82.5mm	0.13 W/m²K
92.5mm	0.12 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

GLASSWOOL INSULATION APPLIED BETWEEN THE TIMBER JOIST

220mm

High performance glasswool insulation applied **BETWEEN** the timber joist. (Insulation thermal conductivity **0.034 W/mK**)

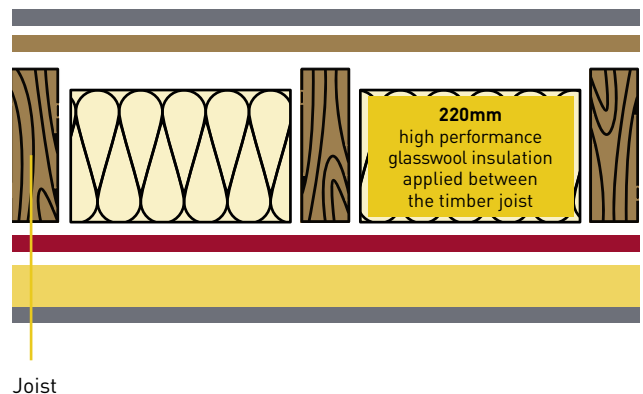
High Performance Glasswool Insulation Options

- 220mm Knauf Earthwool OmniFit Stud Roll 34
- 220mm ISOVER Metac Roll 34
- Timber joist @ 400mm centres

U value Guide 0.19 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.15 W/m²K
50.5mm	0.14 W/m²K
52.5mm	0.14 W/m²K
62.5mm	0.13 W/m²K
72.5mm	0.12 W/m²K
82.5mm	0.12 W/m²K
92.5mm	0.11 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

KNAUF INSULATION

EARTHWOOL OMNIFIT STUD ROLL 34



Knauf Earthwool OmniFit Stud Roll 34
 Suitable for use in roof rafters and timber stud walls.

Available in a solid roll.

Insulation thermal conductivity **0.034 W/mK**.

Knauf Earthwool OmniFit Stud Roll 34 is:
 Thermal, Acoustic, Breathable & Non combustible.

Knauf Earthwool OmniFit Stud Roll 34	Price per m ² £	Price per roll £
220mm Width 1140mm Length 2.50mtr m ² per roll 3.00		
180mm Width 1200mm Length 3.00mtr m ² per roll 3.60		
150mm Width 1200mm Length 3.50mtr m ² per roll 4.20		
140mm Width 1200mm Length 4.20mtr m ² per roll 5.04		
100mm Width 1200mm Length 5.20mtr m ² per roll 6.24		

PRODUCT SUGGESTIONS

ISOVER INSULATION

METAC ROLL 34



ISOVER Metac Roll 34

Suitable for use in roof rafters, roof joist and timber stud walls.

150mm and 180mm is available ready-cut 3 x 400mm to suit 400mm rafter centres.

Solid rolls are also available.

Insulation thermal conductivity **0.034 W/mK**.

ISOVER Metac Roll 34 is:

Thermal, Acoustic, Breathable & Non combustible.

Isover Metac Roll 34	Price per m ² £	Price per roll £
<p>220mm Width 1200mm Length 2.90mtr m2 per roll 3.48 Solid Roll</p>		
<p>180mm Width 1200mm Length 3.40mtr m2 per roll 4.08 Solid Roll or split x3</p>		
<p>150mm Width 1200mm Length 4.10mtr m2 per roll 4.92 Solid Roll or split x3</p>		
<p>100mm Width 1200mm Length 6.00mtr m2 per roll 7.20 Solid Roll</p>		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	

PIR Insulation thickness 25mm/30mm
Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +
Thermal conductivity 0.022 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Timber studs
- › Timber battens (+ fixings)
- › Insulation applied between the timber studs
- › Airtight membrane applied to the internal face of the timber studs (+ staples)
- › Airtight tapes and sealants
- › Insulated plasterboards applied to the internal face of the timber studs (+ fixings)
- › 12mm External Render board (fixed to timber battens)
- › Breathable membrane
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)

FLAT ROOF - COLD ROOF INSULATION

GUIDE 2

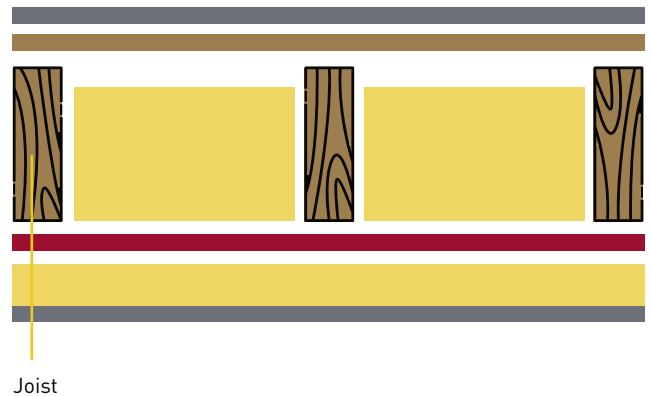


INSULATION MATERIALS

Polyisocyanurate (PIR) foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed **BELOW** the **timber joist**.



NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING A FLAT ROOF - COLD ROOF

Q. What is the depth of the timber studs?

Are they 100mm, 150mm, 180mm, 225mm or other?

The answer to this question will determine the insulation space available between the timber joist. The deeper the timber joist the greater the insulation choice.

Q. What is the spacing/centers between the timber studs?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage barrier/vapour control membrane below the timber joist?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the timber joist?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the timber joist.

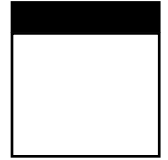
Q. What U value would you like to achieve?

0.21 > Good

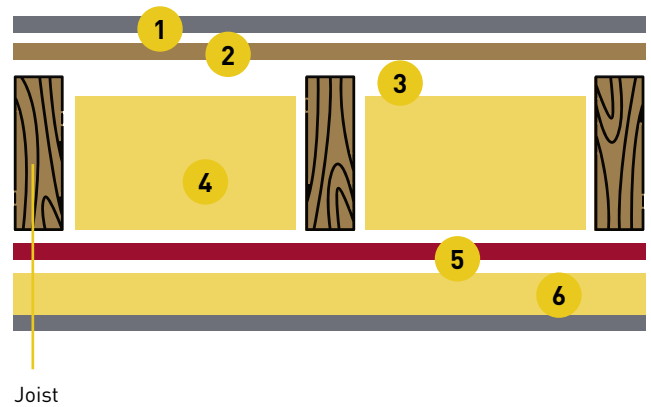
0.18 > Better

0.15 > Best

FLAT ROOF - COLD ROOF BUILD-UP



- ① Watertight layer.
- ② Plywood or OSB roof deck.
- ③ 50/75mm Ventilated air space - Cross flow ventilation.
- ④ Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)
- ⑤ **Airtight membrane** applied **BELOW** the timber joist. (taped and sealed) (VAPOUR CONTROL LAYER)
- ⑥ Polyisocyanurate PIR insulated plasterboard fixed **BELOW** the timber joist.



PIR INSULATION APPLIED BETWEEN THE TIMBER JOIST

100mm

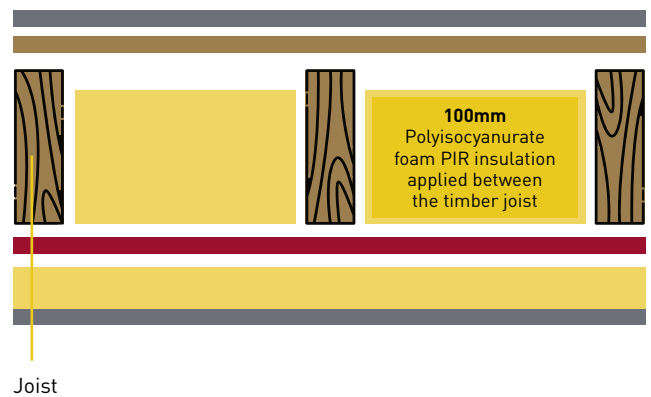
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)

Timber Joist @ 400mm centres

U value Guide 0.30 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.21 W/m ² K
50.5mm	0.19 W/m ² K
52.5mm	0.18 W/m ² K
62.5mm	0.17 W/m ² K
72.5mm	0.16 W/m ² K
82.5mm	0.15 W/m ² K
92.5mm	0.14 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER JOIST

125mm

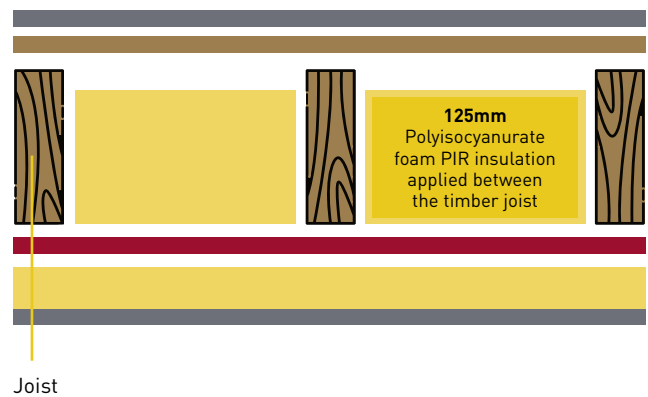
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)

Timber Joist @ 400mm centres

U value Guide 0.25 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m ² K
50.5mm	0.16 W/m ² K
52.5mm	0.16 W/m ² K
62.5mm	0.15 W/m ² K
72.5mm	0.14 W/m ² K
82.5mm	0.13 W/m ² K
92.5mm	0.12 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER JOIST

150mm

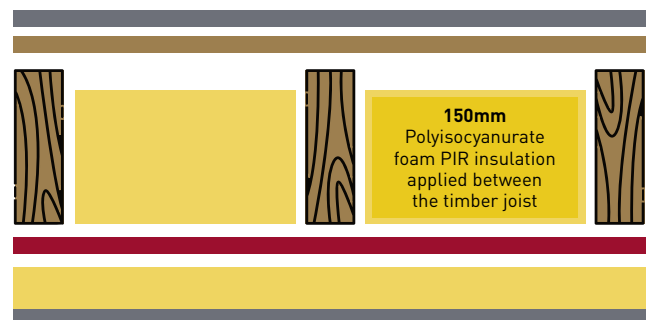
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)

Timber Joist @ 400mm centres

U value Guide 0.21 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.16 W/m ² K
50.5mm	0.15 W/m ² K
52.5mm	0.14 W/m ² K
62.5mm	0.13 W/m ² K
72.5mm	0.13 W/m ² K
82.5mm	0.12 W/m ² K
92.5mm	0.11 W/m ² K



Joist

U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE TIMBER JOIST

175mm

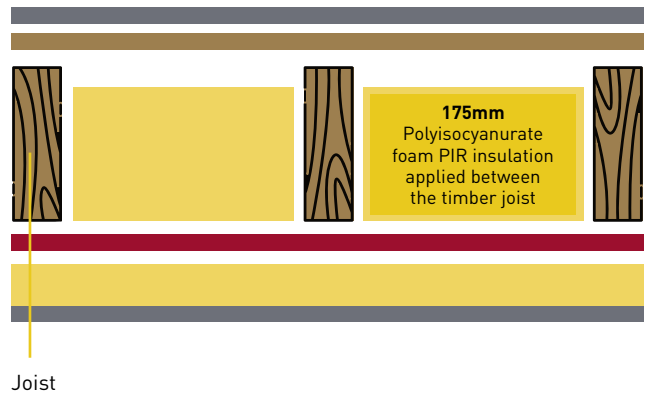
Polyisocyanurate PIR foil faced rigid insulation board applied **BETWEEN** the timber joist. (insulation thermal conductivity **0.022 W/mK**)

Timber Joist @ 400mm centres

U value Guide 0.18 W/m²K

Add PIR insulated plasterboards **below the timber joist** to achieve the below U value

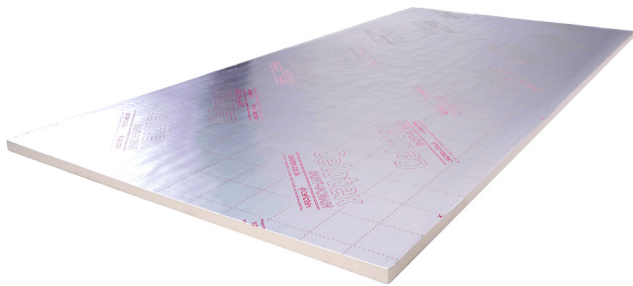
PIR insulated plasterboard	U value Guide
37.5mm	0.14 W/m ² K
50.5mm	0.13 W/m ² K
52.5mm	0.13 W/m ² K
62.5mm	0.12 W/m ² K
72.5mm	0.11 W/m ² K
82.5mm	0.11 W/m ² K
92.5mm	0.10 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED POLYISOCYANURATE (PIR) INSULATION



Foil Faced Polyisocyanurate (PIR) Insulation

Suitable for use in Timber Studs.

Sheet size 1200mm x 2400mm.

Rigid board.

Insulation thermal conductivity
0.022 W/mK.

Foil Faced Polyisocyanurate (PIR)	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm

Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +

Thermal conductivity 0.022 W/mK

12.5mm Plasterboard

Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Watertight roofing system
- › Roof deck plywood or OSB board (+ fixings)
- › Roof joist
- › Furring timbers
- › Insulation applied between the roof joist
- › Airtight membrane applied below the roof joist (+ staples)
- › Airtight tapes and sealants
- › Airtight down light covers
- › Insulated plasterboards applied below the roof joist (+ fixings)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



ROOF RAFTER INSULATION GUIDE 1

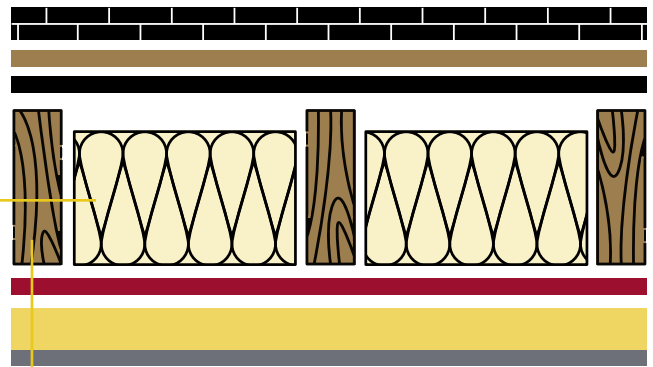
INSULATION  LESS

INSULATION MATERIALS

High performance **Glasswool insulation** applied **BETWEEN** the **roof rafters**. (insulation thermal conductivity **0.034 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed **BELOW** the **roof rafters**.



Rafter

NOTE:

The slate or roof tile will not affect the U value result;
 A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later. The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE ROOF RAFTERS

Q. What type of roof tile or slate are you applying?

Is it a concrete tile, a clay tile, a natural slate or fibre cement slate?

Q. What type of roofing underlay are you applying over the roof rafters?

Is it a breathable underlay or a non breathable underlay?

The answer to this question will determine the ventilation required.

Q. What is the depth of the roof rafters?

Are they 125mm, 150mm, 175mm, 225mm or other?

The answer to this question will determine the insulation space available between the roof rafters.

Q. What is the spacing/centers between the roof rafters?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage/vapour control membrane below the roof rafters?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the roof rafters?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the roof rafters.

Q. What U value would you like to achieve?

0.16 > Good

0.14 > Better

0.12 > Best

WHAT ARE THE BENEFITS OF GLASSWOOL INSULATION?

The glasswool insulation identified in this insulation guide:

- has a thermal conductivity of **0.034 W/mK**.
- is flexible therefore easier to fit between timber structures.
- will provide a snug connection between the insulation layer and the timber rafters.
- is classified A1 Non-Combustible. **Fire Safe**
- is vapour open therefore is breathable allowing timber structures to breathe more freely.
- is both thermal and acoustic therefore will provide a level of sound reduction against rain and road traffic noise, worth considering when the roof space is habitable.

Note:

Timber roof rafters are natural building materials and will continue to expand and contract over the entire life time of the building.

High performance glasswool insulation will expand and contract with the timber structure.

Application:

Simply cut the insulation slightly over size and friction fit.

Note: Existing Timber Rafters.

Internal timber counter battens can be applied to existing timber rafters to increase the insulation space required.

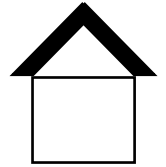
Note:

The deeper the roof rafters the greater the insulation choice.

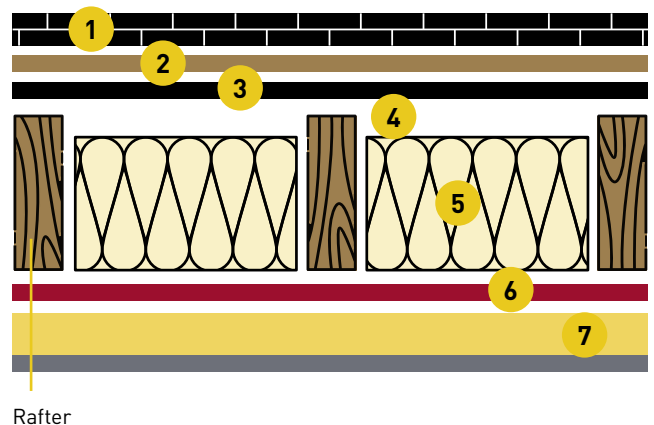
Roof rafter depth:

- 150mm ➤ Good
- 175mm ➤ Better
- 225mm ➤ Best

PITCH ROOF BUILD UP



- ① Concrete/clay roof tiles, natural slate or fibre cement slate.
- ② Roof tile or slate battens.
- ③ **Breathable** roofing underlay applied **OVER** the roof rafters.
- ④ **Ventilated air space - Cross flow ventilation.**
- ⑤ **High performance** glasswool insulation roll applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.034 W/mK**)
- ⑥ **Airtight membrane** applied **BELOW** the roof rafters. (taped and sealed)
- ⑦ **Polyisocyanurate PIR** insulated plasterboard fixed **BELOW** the roof rafters.



Notes:

Where a **non breathable** roofing underlay is in situ layer 3 the ventilated airspace layer 4 must be, not less than **50mm**.

Where fibre cement slates are applied; fully filling the roof rafters with glasswool insulation is **not recommended** unless; timber counter battens are fixed above the breathable roofing underlay. This is to ensure there is adequate ventilation between the roofing underlay and the fibre cement slates.

Where a concrete/clay roof tile or a natural slate is applied the breathable roofing underlay should be draped (minimum 10mm) between the roof rafters. This is to ensure moisture, wind driven rain and snow can run freely of the roof. A condensation risk analysis is advisable where the ventilated airspace in layer 4 is below 25mm.

INSULATION APPLIED BETWEEN THE ROOF RAFTERS

100mm

High performance glasswool insulation applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.034 W/mK**)

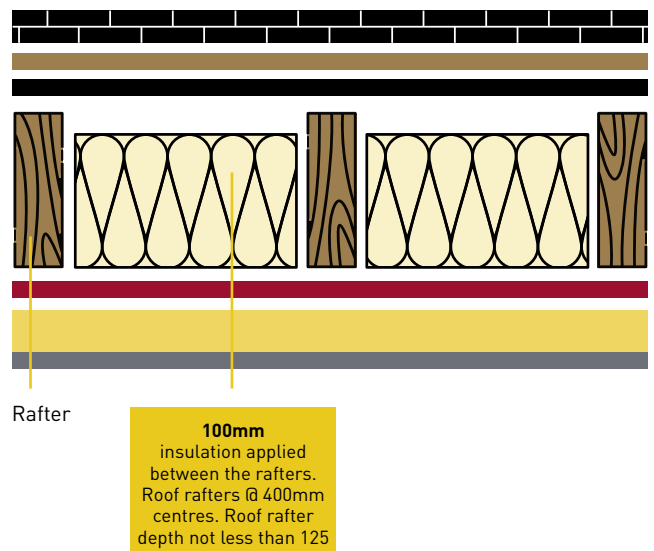
High Performance Glasswool Insulation Options

- 100mm Knauf Earthwool OmniFit Stud Roll 34
- 100mm ISOVER Metac Roll 34

U value Guide 0.39 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.26 W/m²K
50.5mm	0.23 W/m²K
52.5mm	0.22 W/m²K
62.5mm	0.20 W/m²K
72.5mm	0.19 W/m²K
82.5mm	0.17 W/m²K
92.5mm	0.16 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

INSULATION APPLIED BETWEEN THE ROOF RAFTERS

150mm

High performance glasswool insulation applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.034 W/mK**)

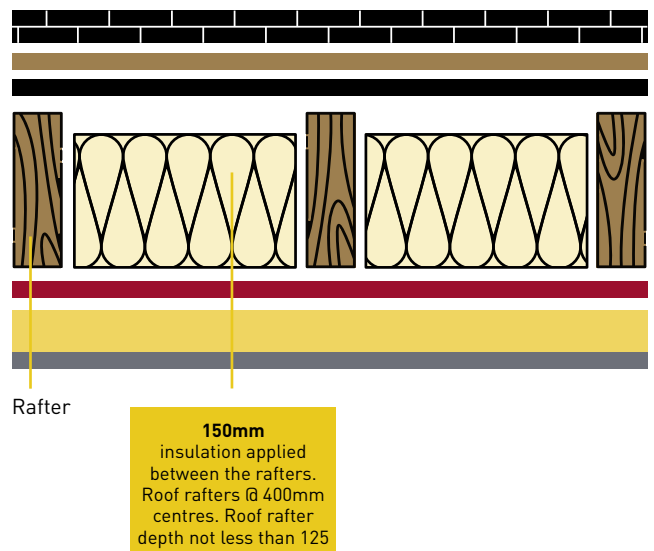
High Performance Glasswool Insulation Options

- 150mm Knauf Earthwool OmniFit Stud Roll 34
- 150mm ISOVER Metac Roll 34

U value Guide 0.27 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.20 W/m²K
50.5mm	0.18 W/m²K
52.5mm	0.18 W/m²K
62.5mm	0.16 W/m²K
72.5mm	0.15 W/m²K
82.5mm	0.14 W/m²K
92.5mm	0.13 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

INSULATION APPLIED BETWEEN THE ROOF RAFTERS

180mm

High performance glasswool insulation applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.034 W/mK**)

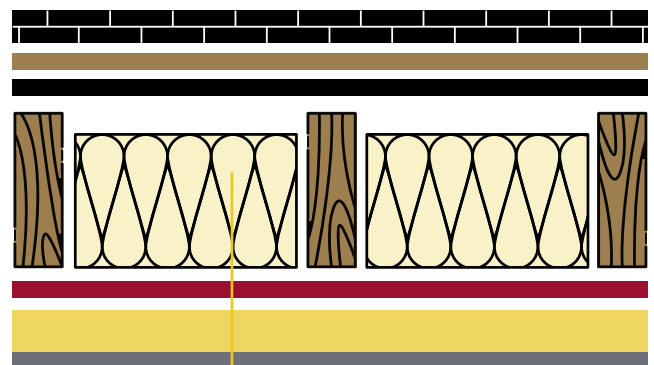
High Performance Glasswool Insulation Options

- 180mm Knauf Earthwool OmniFit Stud Roll 34
- 180mm ISOVER Metac Roll 34

U value Guide 0.23 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m²K
50.5mm	0.16 W/m²K
52.5mm	0.16 W/m²K
62.5mm	0.15 W/m²K
72.5mm	0.14 W/m²K
82.5mm	0.13 W/m²K
92.5mm	0.12 W/m²K



Rafter

180mm insulation applied between the rafters. Roof rafters @ 400mm centres. Roof rafter depth not less than 125

U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

INSULATION APPLIED BETWEEN THE ROOF RAFTERS

220mm

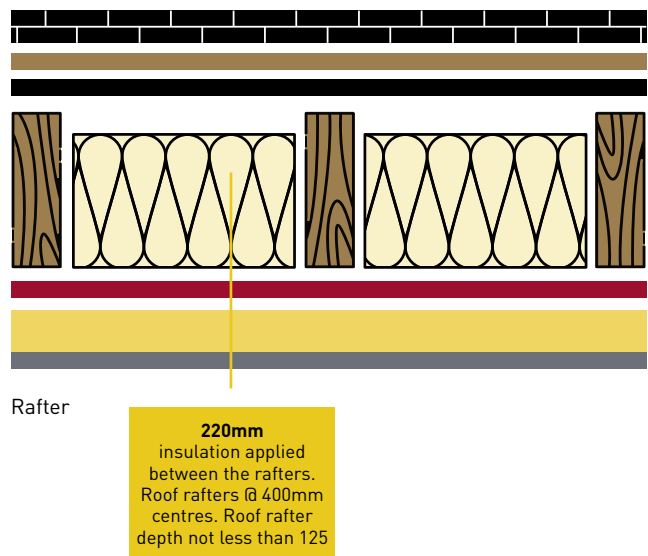
High performance glasswool insulation applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.034 W/mK**)

High Performance Glasswool Insulation Options
 220mm Knauf Earthwool OmniFit Stud Roll 34
 220mm ISOVER Metac Roll 34

U value Guide 0.19 W/m²K

Add PIR insulated plasterboards to the **internal face of studs** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.15 W/m²K
50.5mm	0.14 W/m²K
52.5mm	0.14 W/m²K
62.5mm	0.13 W/m²K
72.5mm	0.12 W/m²K
82.5mm	0.12 W/m²K
92.5mm	0.11 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

KNAUF INSULATION

EARTHWOOL OMNIFIT STUD

ROLL 34



Knauf Earthwool OmniFit Stud Roll 34
 Suitable for use in roof rafters and timber stud walls.

Available in a solid roll.

Insulation thermal conductivity **0.034 W/mK**.

Knauf Earthwool OmniFit Stud Roll 34 is:
 Thermal, Acoustic, Breathable & Non combustible.

Knauf Earthwool OmniFit Stud Roll 34	Price per m ² £	Price per roll £
220mm Width 1140mm Length 2.50mtr m ² per roll 3.00		
180mm Width 1200mm Length 3.00mtr m ² per roll 3.60		
150mm Width 1200mm Length 3.50mtr m ² per roll 4.20		
140mm Width 1200mm Length 4.20mtr m ² per roll 5.04		
100mm Width 1200mm Length 5.20mtr m ² per roll 6.24		

PRODUCT SUGGESTIONS

ISOVER INSULATION

METAC ROLL 34



ISOVER Metac Roll 34

Suitable for use in roof rafters, roof joist and timber stud walls.

150mm and 180mm is available ready-cut 3 x 400mm to suit 400mm rafter centres.

Solid rolls are also available.

Insulation thermal conductivity **0.034 W/mK**.

ISOVER Metac Roll 34 is:

Thermal, Acoustic, Breathable & Non combustible.

Isover Metac Roll 34	Price per m ² £	Price per roll £
220mm Width 1200mm Length 2.90mtr m2 per roll 3.48 Solid Roll		
180mm Width 1200mm Length 3.40mtr m2 per roll 4.08 Solid Roll or split x3		
150mm Width 1200mm Length 4.10mtr m2 per roll 4.92 Solid Roll or split x3		
100mm Width 1200mm Length 6.00mtr m2 per roll 7.20 Solid Roll		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm
Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +
Thermal conductivity 0.022 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Roof tile or slates (+ fixings)
- › Ridges
- › Roof edge trims or dry verge
- › Lead flashing
- › Roof tile battens (+ fixings)
- › Counter battens (+ fixings)
- › Over fascia vents
- › Eaves carrier (+ tape)
- › Breathable roofing membrane
- › Roof rafters
- › Soffit and fascia boards
- › Roof windows
- › Insulation applied between the roof rafters
- › Airtight membrane below the roof rafters (+ staples)
- › Airtight tapes and sealants.
- › Airtight down light covers.
- › Insulated plasterboards applied below the roof rafters (+ fixings)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



ROOF RAFTER INSULATION GUIDE 2

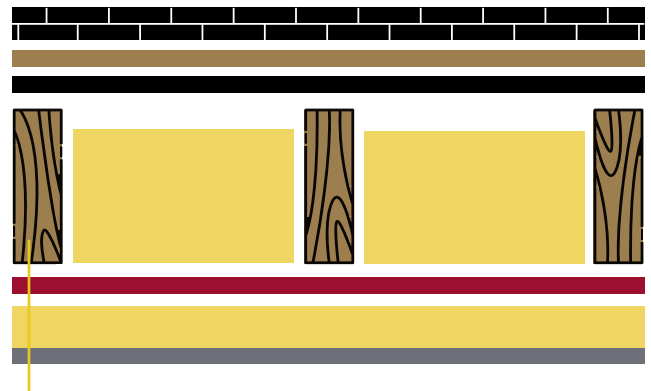
INSULATION  LESS

INSULATION MATERIALS

Polyisocyanurate PIR insulation applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)



Polyisocyanurate PIR insulated plasterboards fixed **BELOW** the roof rafters.



Rafter

NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE ROOF RAFTERS

Q. What type of roof tile or slate are you applying?

Is it a concrete tile, a clay tile, a natural slate or fibre cement slate?

Q. What type of roofing underlay are you applying over the roof rafters?

Is it a breathable underlay or a non breathable underlay?

The answer to this question will determine the ventilation required.

Q. What is the depth of the roof rafters?

Are they 125mm, 150mm, 175mm, 225mm or other?

The answer to this question will determine the insulation space available between the roof rafters.

Q. What is the spacing/centers between the roof rafters?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage/vapour control membrane below the roof rafters?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the roof rafters?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the roof rafters.

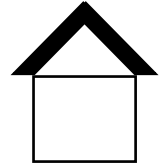
Q. What U value would you like to achieve?

0.16 > Good

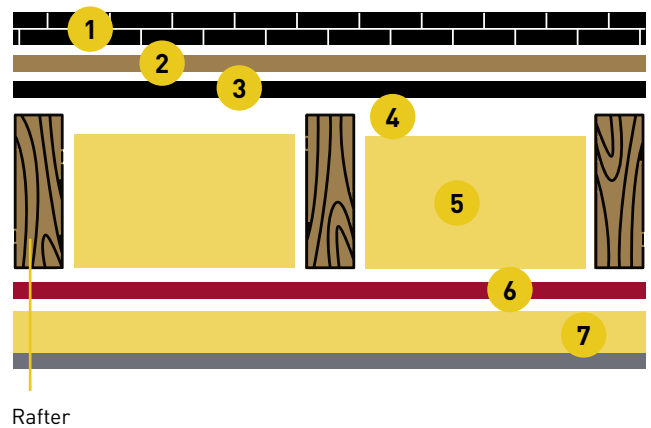
0.14 > Better

0.12 > Best

PITCH ROOF BUILD UP



- ① Concrete/clay roof tiles, natural slate or fibre cement slate.
- ② Roof tile or slate battens.
- ③ **Breathable** roofing underlay applied **OVER** the roof rafters.
- ④ **Ventilated air space - Cross flow ventilation.**
- ⑤ **Polyisocyanurate PIR** applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)
- ⑥ **Airtight membrane** applied **BELOW** the roof rafters. (taped and sealed)
- ⑦ **Polyisocyanurate PIR** insulated plasterboard fixed **BELOW** the roof rafters.



Notes:

Where a **non breathable** roofing underlay is in situ layer 3 the ventilated airspace layer 4 must be, not less than **50mm**.

Fully filling the roof rafters with Polyisocyanurate PIR insulation board is **not recommended**.

PIR INSULATION APPLIED BETWEEN THE ROOF RAFTERS

80mm

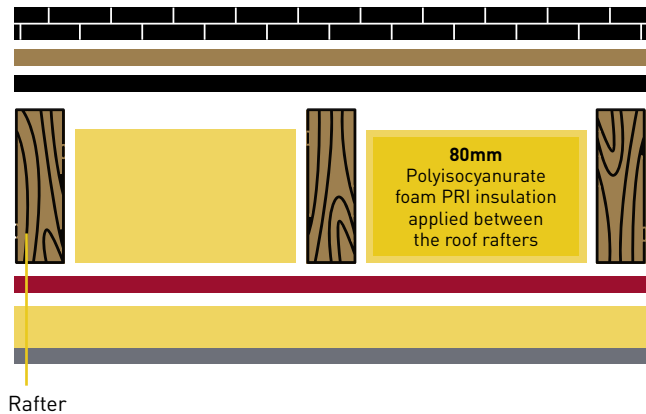
Polyisocyanurate PIR rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.36 W/m²K**

Add PIR insulated plasterboards **below the roof rafters** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.24 W/m ² K
50.5mm	0.21 W/m ² K
52.5mm	0.21 W/m ² K
62.5mm	0.19 W/m ² K
72.5mm	0.17 W/m ² K
82.5mm	0.16 W/m ² K
92.5mm	0.15 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE ROOF RAFTERS

100mm

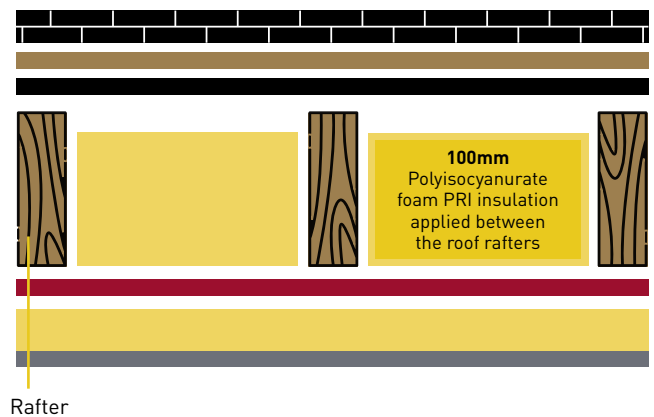
Polyisocyanurate PIR rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.29 W/m²K

Add PIR insulated plasterboards **below the roof rafters** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.21 W/m ² K
50.5mm	0.19 W/m ² K
52.5mm	0.18 W/m ² K
62.5mm	0.17 W/m ² K
72.5mm	0.16 W/m ² K
82.5mm	0.15 W/m ² K
92.5mm	0.14 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE ROOF RAFTERS

125mm

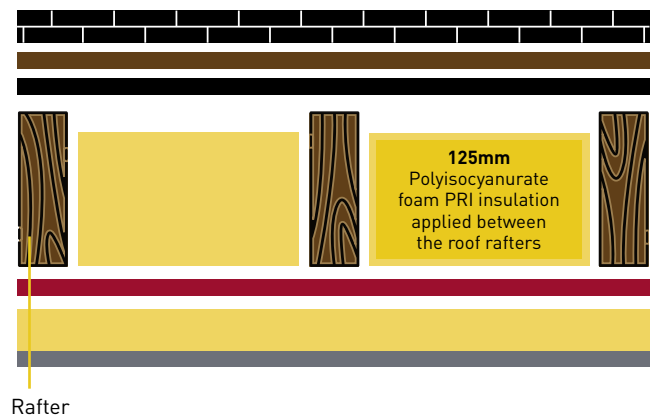
Polyisocyanurate PIR rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.24 W/m²K

Add PIR insulated plasterboards **below the roof rafters** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.18 W/m ² K
50.5mm	0.16 W/m ² K
52.5mm	0.16 W/m ² K
62.5mm	0.15 W/m ² K
72.5mm	0.14 W/m ² K
82.5mm	0.13 W/m ² K
92.5mm	0.12 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE ROOF RAFTERS

150mm

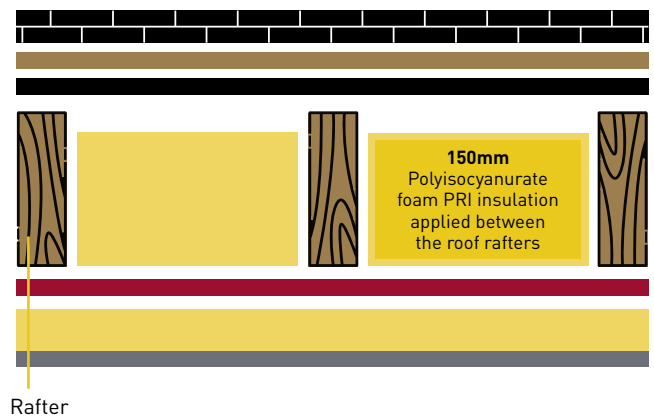
Polyisocyanurate PIR rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.20 W/m²K

Add PIR insulated plasterboards **below the roof rafters** to achieve the below U value

PIR insulated plasterboard	U value Guide
37.5mm	0.16 W/m ² K
50.5mm	0.14 W/m ² K
52.5mm	0.14 W/m ² K
62.5mm	0.13 W/m ² K
72.5mm	0.12 W/m ² K
82.5mm	0.12 W/m ² K
92.5mm	0.11 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PIR INSULATION APPLIED BETWEEN THE ROOF RAFTERS

175mm

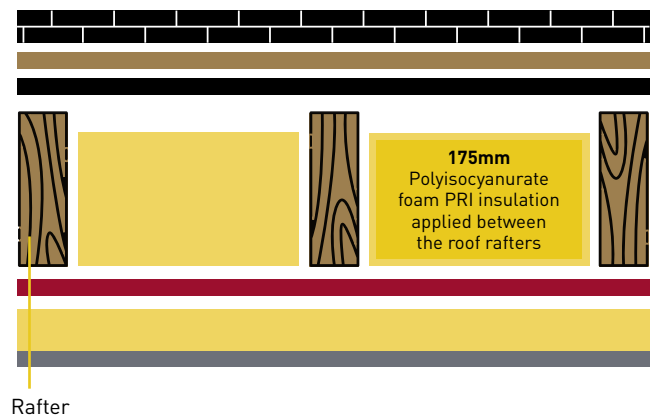
Polyisocyanurate PIR rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.022 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.18 W/m²K**

Add PIR insulated plasterboards **below the roof rafters** to achieve the below U value

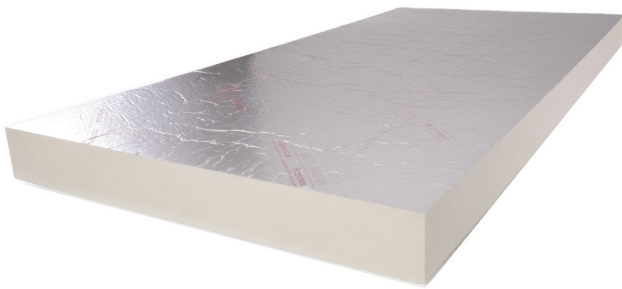
PIR insulated plasterboard	U value Guide
37.5mm	0.14 W/m ² K
50.5mm	0.13 W/m ² K
52.5mm	0.13 W/m ² K
62.5mm	0.12 W/m ² K
72.5mm	0.11 W/m ² K
82.5mm	0.11 W/m ² K
92.5mm	0.10 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED POLYISOCYANURATE (PIR) INSULATION



Foil Faced Polyisocyanurate (PIR) Insulation

Suitable for use in Timber Studs.

Sheet size 1200mm x 2400mm.

Rigid board.

Insulation thermal conductivity
0.022 W/mK.

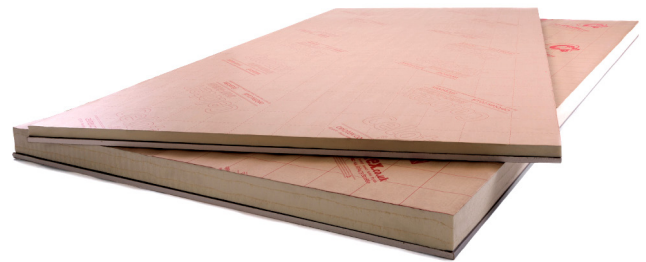
Foil Faced Polyisocyanurate (PIR)	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PIR INSULATED PLASTERBOARDS

THERMAL RESISTANCE GUIDE

PIR Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.20	
42.5mm	1.43	
50mm	1.79	
52.5mm	1.88	
62.5mm	2.33	
72.5mm	2.79	
82.5mm	3.24	
92.5mm	3.70	
102.5mm	4.15	
112.5mm	4.61	



PIR Insulation thickness 25mm/30mm
Thermal conductivity 0.022 W/mK

PIR Insulation thickness 38mm +
Thermal conductivity 0.022 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Roof tile or slates (+ fixings)
- › Ridges
- › Roof edge trims or dry verge
- › Lead flashing
- › Roof tile battens (+ fixings)
- › Counter battens (+ fixings)
- › Over fascia vents
- › Eaves carrier (+ tape)
- › Breathable roofing membrane
- › Roof rafters
- › Soffit and fascia boards
- › Roof windows
- › Insulation applied between the roof rafters
- › Airtight membrane below the roof rafters (+ staples)
- › Airtight tapes and sealants.
- › Airtight down light covers.
- › Insulated plasterboards applied below the roof rafters (+ fixings)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



ROOF RAFTER INSULATION GUIDE 3

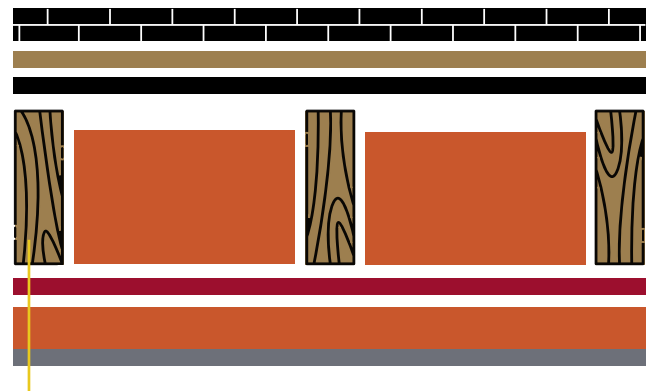
INSULATION  LESS

INSULATION MATERIALS

PHENOLIC insulation applied **BETWEEN** the Roof Rafters. (insulation thermal conductivity **0.020 W/mK**)



PHENOLIC insulated plasterboard fixed **BELOW** the Roof Rafters.



Rafter

NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE ROOF RAFTERS

Q. What type of roof tile or slate are you applying?

Is it a concrete tile, a clay tile, a natural slate or fibre cement slate?

Q. What type of roofing underlay are you applying over the roof rafters?

Is it a breathable underlay or a non breathable underlay?

The answer to this question will determine the ventilation required.

Q. What is the depth of the roof rafters?

Are they 125mm, 150mm, 175mm, 225mm or other?

The answer to this question will determine the insulation space available between the roof rafters.

Q. What is the spacing/centers between the roof rafters?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage/vapour control membrane below the roof rafters?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the roof rafters?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the roof rafters.

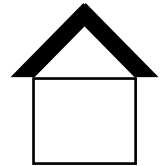
Q. What U value would you like to achieve?

0.16 > Good

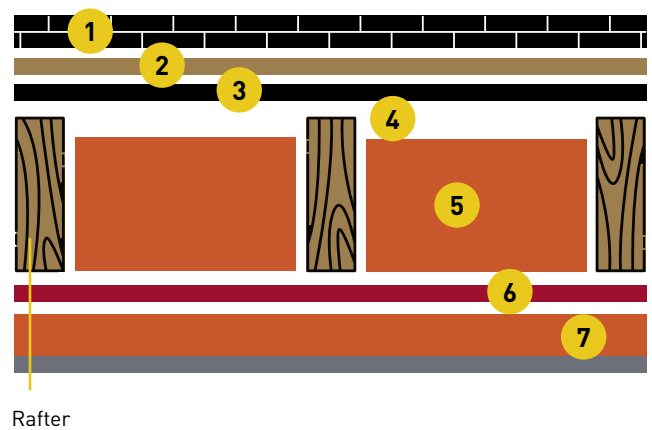
0.14 > Better

0.12 > Best

PITCH ROOF BUILD UP



- ① Concrete/clay roof tiles, natural slate or fibre cement slate.
- ② Roof tile or slate battens.
- ③ **Breathable** roofing underlay applied **OVER** the roof rafters.
- ④ **Ventilated air space - Cross flow ventilation.**
- ⑤ **Phenolic** Foil faced rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020W/mK**)
- ⑥ **Airtight membrane** applied **BELOW** the roof rafters. (taped and sealed)
- ⑦ **Phenolic** insulated plasterboard fixed **BELOW** the roof rafters.



Notes:

Where a **non breathable** roofing underlay is in situ layer 3 the ventilated airspace layer 4 must be, not less than **50mm**.

Fully filling the roof rafters with PHENOLIC insulation is **not recommended**.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

80mm

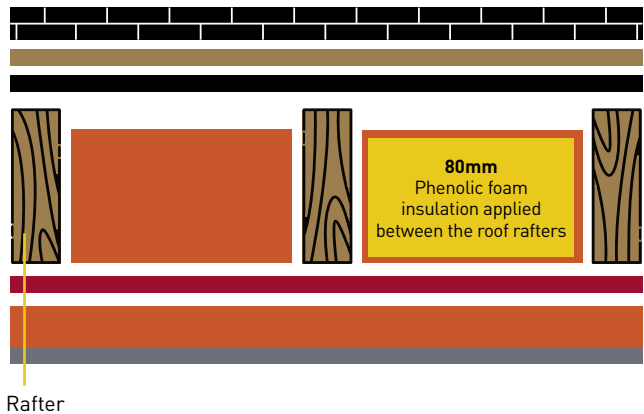
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.34 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.23 W/m ² K
50.5mm	0.22 W/m ² K
52.5mm	0.20 W/m ² K
62.5mm	0.17 W/m ² K
72.5mm	0.16 W/m ² K
82.5mm	0.15 W/m ² K
92.5mm	0.14 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

100mm

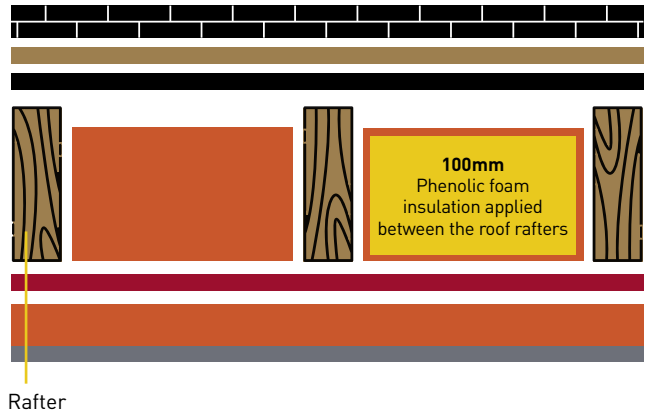
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.28 W/m²K**

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.20 W/m²K
50.5mm	0.19 W/m²K
52.5mm	0.17 W/m²K
62.5mm	0.16 W/m²K
72.5mm	0.14 W/m²K
82.5mm	0.13 W/m²K
92.5mm	0.13 W/m²K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

125mm

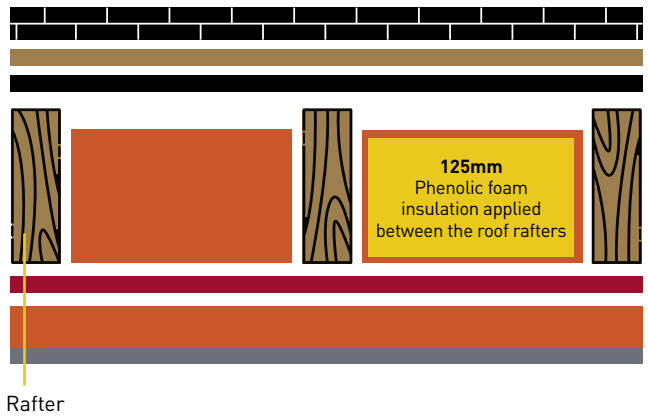
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.23 W/m²K**

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.17 W/m ² K
50.5mm	0.16 W/m ² K
52.5mm	0.15 W/m ² K
62.5mm	0.14 W/m ² K
72.5mm	0.13 W/m ² K
82.5mm	0.12 W/m ² K
92.5mm	0.11 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

150mm

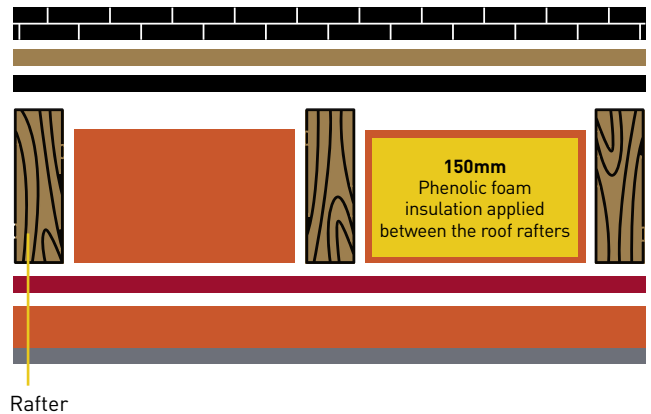
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.19 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.15 W/m ² K
50.5mm	0.14 W/m ² K
52.5mm	0.13 W/m ² K
62.5mm	0.12 W/m ² K
72.5mm	0.12 W/m ² K
82.5mm	0.11 W/m ² K
92.5mm	0.10 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

175mm

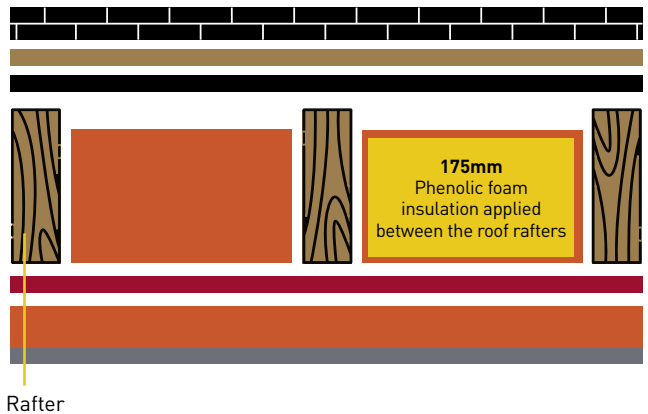
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.020 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.17 W/m²K**

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

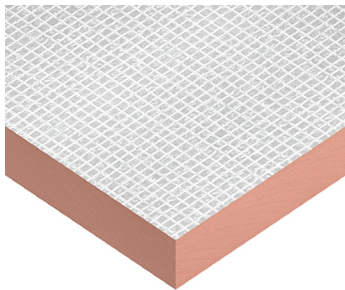
Phenolic insulated plasterboard	U value Guide
37.5mm	0.13 W/m ² K
50.5mm	0.13 W/m ² K
52.5mm	0.12 W/m ² K
62.5mm	0.11 W/m ² K
72.5mm	0.11 W/m ² K
82.5mm	0.10 W/m ² K
92.5mm	0.09 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED PHENOLIC INSULATION



Foil Faced PHENOLIC Insulation.
Suitable for use between Roof Rafters.

Sheet size 1200mm x 2400mm

Foil faced rigid insulation board

Insulation thermal conductivity **0.020 W/mK**

Foil Faced PHENOLIC Insulation	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PHENOLIC INSULATED PLASTERBOARD

THERMAL RESISTANCE GUIDE

Phenolic Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.256	
42.5mm	1.495	
50mm	1.876	
52.5mm	1.971	
62.5mm	2.566	
72.5mm	3.066	
82.5mm	3.566	
92.5mm	4.066	
102.5mm	4.566	
112.5mm	5.066	



Phenolic Insulation thickness 25mm/30mm
Thermal conductivity 0.020 W/mK

Phenolic Insulation thickness 38mm +
Thermal conductivity 0.020 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Roof tile or slates (+ fixings)
- › Ridges
- › Roof edge trims or dry verge
- › Lead flashing
- › Roof tile battens (+ fixings)
- › Counter battens (+ fixings)
- › Over fascia vents
- › Eaves carrier (+ tape)
- › Breathable roofing membrane
- › Roof rafters
- › Soffit and fascia boards
- › Roof windows
- › Insulation applied between the roof rafters
- › Airtight membrane below the roof rafters (+ staples)
- › Airtight tapes and sealants.
- › Airtight down light covers.
- › Insulated plasterboards applied below the roof rafters (+ fixings)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)



ROOF RAFTER INSULATION GUIDE 4

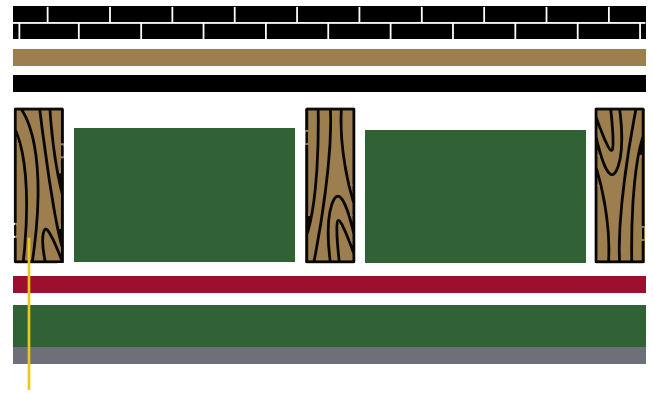
INSULATION  LESS

INSULATION MATERIALS

PHENOLIC insulation applied **BETWEEN** the Roof Rafters. (insulation thermal conductivity **0.018 W/mK**)



PHENOLIC PIR insulated plasterboards fixed **BELOW** the **Roof Rafters**.



Rafter

NOTE:

The slate or roof tile will not affect the U value result;

A breathable roofing membrane will reduce the risk of condensation within the roof space and also reduce the levels of cold air movement;

Where a non breathable roofing felt (slaters felt) is applied above the roof rafters, always maintain adequate ventilation above the insulation later.

The **ventilation will have an effect** on the levels of moisture within the roof space.

WHAT WE NEED TO KNOW WHEN INSULATING THE ROOF RAFTERS

Q. What type of roof tile or slate are you applying?

Is it a concrete tile, a clay tile, a natural slate or fibre cement slate?

Q. What type of roofing underlay are you applying over the roof rafters?

Is it a breathable underlay or a non breathable underlay?

The answer to this question will determine the ventilation required.

Q. What is the depth of the roof rafters?

Are they 125mm, 150mm, 175mm, 225mm or other?

The answer to this question will determine the insulation space available between the roof rafters.

Q. What is the spacing/centers between the roof rafters?

Are they 400mm centres, 600mm centres or other?

The answer to this question will determine the thermal bridging factor.

Q. Are you applying an airleakage/vapour control membrane below the roof rafters?

Yes is the best option, airtightness/vcl membranes reduce heat loss and provide protection against moisture damage.

Q. Are you applying an insulated plasterboard below the roof rafters?

Yes is the best option, the insulated plasterboard reduces thermal bridging through the roof rafters.

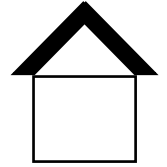
Q. What U value would you like to achieve?

0.16 > Good

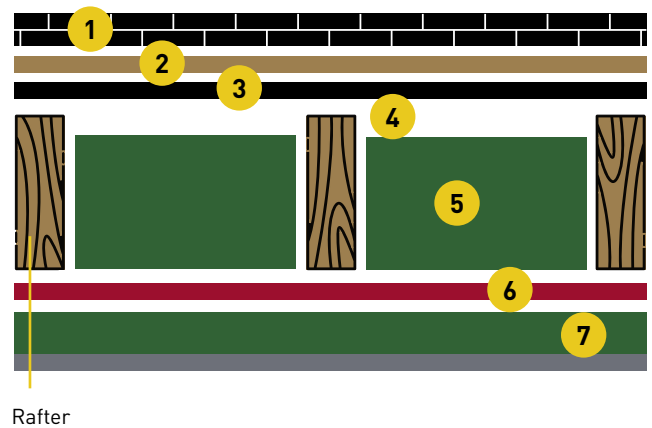
0.14 > Better

0.12 > Best

PITCH ROOF BUILD UP



- ① Concrete/clay roof tiles, natural slate or fibre cement slate.
- ② Roof tile or slate battens.
- ③ **Breathable** roofing underlay applied **OVER** the roof rafters.
- ④ **Ventilated air space - Cross flow ventilation.**
- ⑤ **Phenolic** Foil faced rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018W/mK**)
- ⑥ **Airtight membrane** applied **BELOW** the roof rafters. (taped and sealed)
- ⑦ **Phenolic** insulated plasterboard fixed **BELOW** the roof rafters.



Notes:

Where a **non breathable** roofing underlay is in situ layer 3 the ventilated airspace layer 4 must be, not less than **50mm**.

Fully filling the roof rafters with PHENOLIC insulation is **not recommended**.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

80mm

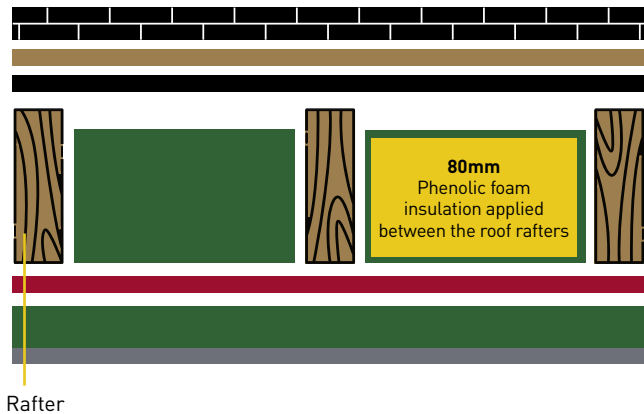
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.32 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.21 W/m ² K
50.5mm	0.20 W/m ² K
52.5mm	0.18 W/m ² K
62.5mm	0.16 W/m ² K
72.5mm	0.15 W/m ² K
82.5mm	0.14 W/m ² K
92.5mm	0.13 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

100mm

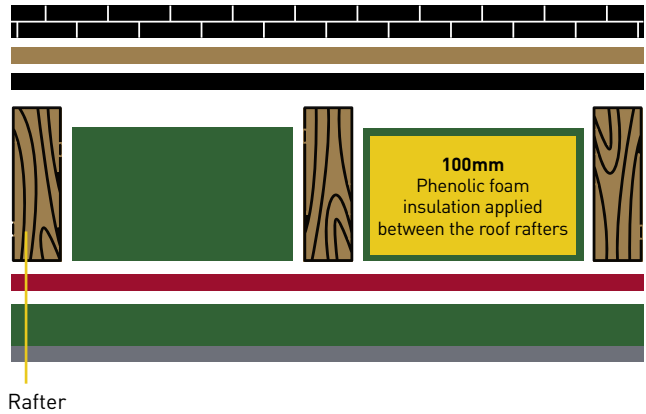
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.26 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.18 W/m ² K
50.5mm	0.17 W/m ² K
52.5mm	0.16 W/m ² K
62.5mm	0.14 W/m ² K
72.5mm	0.13 W/m ² K
82.5mm	0.12 W/m ² K
92.5mm	0.12 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
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 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

125mm

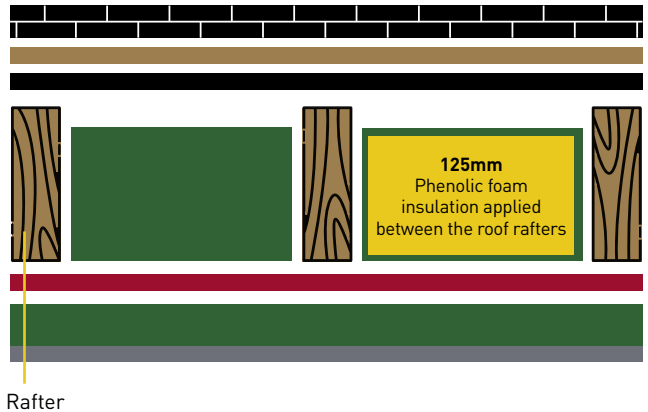
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.22 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.16 W/m ² K
50.5mm	0.15 W/m ² K
52.5mm	0.14 W/m ² K
62.5mm	0.13 W/m ² K
72.5mm	0.12 W/m ² K
82.5mm	0.11 W/m ² K
92.5mm	0.10 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

150mm

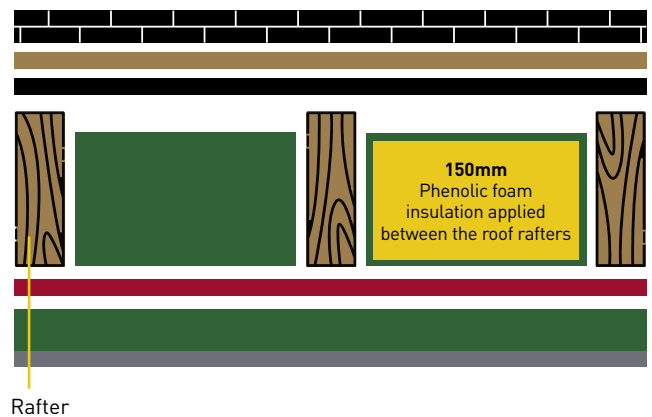
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018 W/mK**)

Roof Rafters @ 400mm centres

U value Guide 0.18 W/m²K

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

Phenolic insulated plasterboard	U value Guide
37.5mm	0.14 W/m ² K
50.5mm	0.13 W/m ² K
52.5mm	0.12 W/m ² K
62.5mm	0.11 W/m ² K
72.5mm	0.11 W/m ² K
82.5mm	0.10 W/m ² K
92.5mm	0.09 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PHENOLIC INSULATION APPLIED BETWEEN THE ROOF RAFTERS

175mm

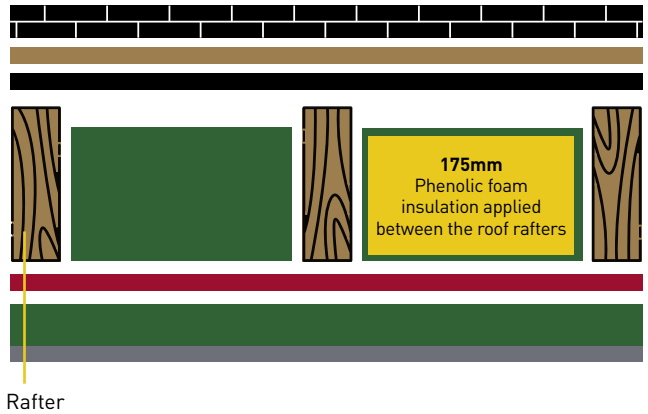
Phenolic rigid insulation board applied **BETWEEN** the roof rafters. (insulation thermal conductivity **0.018 W/mK**)

Roof Rafters @ 400mm centres

U value Guide **0.16 W/m²K**

Add Phenolic insulated plasterboards **below the roof rafters** to achieve the below U value

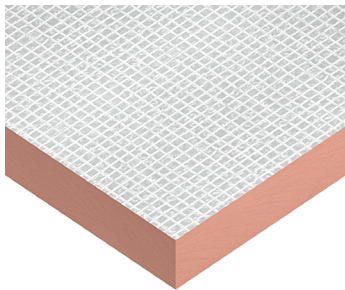
Phenolic insulated plasterboard	U value Guide
37.5mm	0.12 W/m ² K
50.5mm	0.12 W/m ² K
52.5mm	0.11 W/m ² K
62.5mm	0.10 W/m ² K
72.5mm	0.10 W/m ² K
82.5mm	0.09 W/m ² K
92.5mm	0.09 W/m ² K



U value results are calculated with ceiling joist @ 400mm centers.
U value results calculated with ceiling joist @ 600mm centres will be marginally better.
 U value results calculated with insulation filling the ceiling joist.

PRODUCT SUGGESTIONS

FOIL FACED PHENOLIC INSULATION



Foil Faced PHENOLIC Insulation.
Suitable for use between Roof Rafters.

Sheet size 1200mm x 2400mm

Foil faced rigid insulation board

Insulation thermal conductivity **0.018 W/mK**

Foil Faced PHENOLIC Insulation	Price per m ² £	Price per sheet £
80mm Width 1200mm Length 2400mm m2 per sheet 2.88		
100mm Width 1200mm Length 2400mm m2 per sheet 2.88		
125mm Width 1200mm Length 2400mm m2 per sheet 2.88		
150mm Width 1200mm Length 2400mm m2 per sheet 2.88		

PHENOLIC INSULATED PLASTERBOARD

THERMAL RESISTANCE GUIDE

Phenolic Insulation bonded to 12.5mm
Plasterboard

Overall thickness	Thermal Resistance Guide Including Plasterboard	Price per sheet £
37.5mm	1.455	
42.5mm	1.733	
50mm	2.177	
52.5mm	2.228	
62.5mm	2.884	
72.5mm	3.355	
82.5mm	3.955	
92.5mm	4.150	
102.5mm	5.066	
112.5mm	5.622	



Phenolic Insulation thickness 25mm/30mm
Thermal conductivity 0.018 W/mK

Phenolic Insulation thickness 38mm +
Thermal conductivity 0.018 W/mK

12.5mm Plasterboard
Thermal conductivity 0.19/0.21 W/mK

MATERIALS LIST

- › Roof tile or slates (+ fixings)
- › Ridges
- › Roof edge trims or dry verge
- › Lead flashing
- › Roof tile battens (+ fixings)
- › Counter battens (+ fixings)
- › Over fascia vents
- › Eaves carrier (+ tape)
- › Breathable roofing membrane
- › Roof rafters
- › Soffit and fascia boards
- › Roof windows
- › Insulation applied between the roof rafters
- › Airtight membrane below the roof rafters (+ staples)
- › Airtight tapes and sealants.
- › Airtight down light covers.
- › Insulated plasterboards applied below the roof rafters (+ fixings)
- › Plasterboards (+ fixings)
- › Joint filler and joint tape
- › Plaster skim coat

INSULATION GUIDES AVAILABLE

- › Roof Rafter Insulation
- › Dwarf Wall Insulation
- › Dormer Cheek Insulation
- › Attic Insulation
- › Flat Roof Insulation (cold roof)
- › Flat Roof Insulation (warm roof)
- › Cavity Wall Insulation
- › Solid Block / Stone Wall Insulation
- › Timber Frame Wall Insulation
- › Ground Floor Insulation (concrete)
- › Ground Floor Insulation (timber joist upgrade)
- › Airtight Solutions (membranes, tapes and sealants)
- › Airtight Solutions (liquid applied membrane)

We have gathered all the information you will need to get your building project off to a great start. Our aim is to assist you in managing your building project finding the best possible prices on all insulation products and plastering materials.

We also provide product information from all our suppliers and access to an expert builder in our "Ask an expert" section.

Insulation4less's unique One-stop shop approach will allow you to save time and efforts in selecting all the insulation materials you need. Whether you are an expert builder or just starting out, we have all the information put into one place for your convenience.

Our aim is to provide the best possible service to our customers, not only by providing you with some of the best prices in the market on all our insulation materials but to also provide the best customer service possible.

Trust Insulation4less to deliver the best deals on all insulation materials. We guarantee it!

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The information contained within this guide is for reference only and is not an infallible guide to achieving specific U-values.

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