

A 3D cutaway diagram of a building wall assembly. From left to right, the layers are: a textured grey exterior finish with a wavy pattern, a vertical brown insulation strip, a grey concrete block, a vertical brown insulation strip, and a stack of red bricks with light-colored mortar. The cutaway is shown from a perspective that reveals the internal structure of the wall.

# ACHIEVING PART L WITH FORTERRA



## Introduction

The interim 2021 Part L uplift of the Building Regulations is paving the way for the new Future Homes Standard (FHS), due to be implemented in the spring of 2025. The uplift brings with it more demanding U-value targets for all building types in a bid to deliver a meaningful reduction in carbon emissions. Under the FHS, the building fabric standards will be pushed even further.

## Notional building specifications

	Part L: 2013	Part L: 2021	Indicative FHS Specification
External wall u-value (W/m <sup>2</sup> K)	0.18	0.18	0.15
Roof u-value (W/m <sup>2</sup> K)	0.13	0.11	0.11
Floor u-value (W/m <sup>2</sup> K)	0.13	0.13	0.11
Window u-value (W/m <sup>2</sup> K)	1.40	1.20 (double glazing)	0.80 (triple glazing)
Ventilation system	Natural with extract fans		
Air permeability (m <sup>3</sup> /h.m <sup>2</sup> at 50Pa)	5		
Space heating source	Condensing gas boiler		Low carbon heating (e.g. heat pump)
Heat emitters	Standard radiators	Low temperature heating	
Waste water heat recovery (WWHR)	No	Yes	No
y-value (W/m <sup>2</sup> K)	0.05		
PV Installation area	-	40% ground floor area	-

In this document we explore how you can achieve the interim 2021 Part L uplift with Forterra products and services. We believe the key to achieving the new targets is involving suppliers as early as possible in the specification stage. At Forterra, we have an extensive range of wall and flooring products, supported by our experienced technical team who are on hand to answer questions at every stage of your build. They can advise on product performance, provide technical specifications and product declarations for Forterra products, and arrange official U-value assessments.

You'll find an overview of our product ranges in this booklet along with a full list of products and technical data at the back. (See pages 8-11)

## Walls

Our range of Thermalite aircrete blocks and Conbloc aggregate blocks are available in a wide selection of densities, configurations, sizes and finishes for creating solid walls, partitions, cavity walls and separating walls, ensuring the achievement of U-values for a variety of build types.

### New Build Wall Constructions

		Part L: 2013	Part L: 2021
Walls - Notional Values	New fabric elements in new dwellings	0.18	0.18
Walls - Backstop Values	New fabric elements in new dwellings	0.3	0.26

Aircrete	Concrete Block
<p><b>U-VALUE 0.26W/m²K</b></p>	<p><b>U-VALUE 0.25W/m²K</b></p>
<p><b>U-VALUE 0.26W/m²K</b></p>	<p><b>U-VALUE 0.24W/m²K</b></p>
<p><b>U-VALUE 0.17W/m²K</b></p>	<p><b>U-VALUE 0.19W/m²K</b></p>

## Extension Wall Constructions

### Backstop Values

In a bid to improve the thermal efficiency of as much of England's housing stock as possible, the renovation and extension of existing dwellings will require more stringent U-values than for new dwellings.

		Part L: 2013	Part L: 2021
Walls	New fabric elements in existing dwellings	0.28	0.18

Aircrete	Concrete Block
<p><b>U-VALUE 0.18W/m²K</b></p>	<p><b>U-VALUE 0.18W/m²K</b></p>
<p><b>U-VALUE 0.17W/m²K</b></p>	<p><b>U-VALUE 0.17W/m²K</b></p>
<p><b>U-VALUE 0.17W/m²K</b></p>	<p><b>U-VALUE 0.16W/m²K</b></p>

## Floors

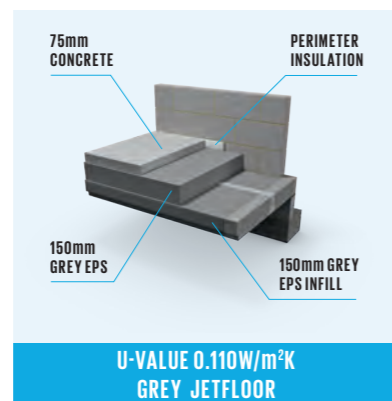
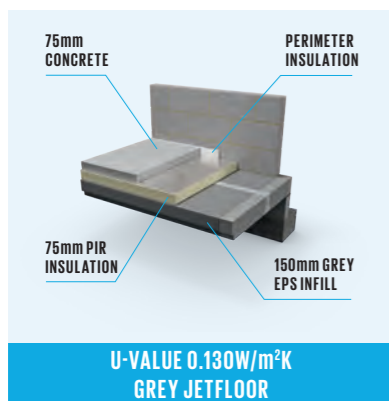
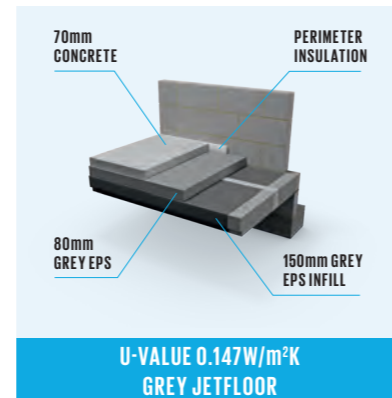
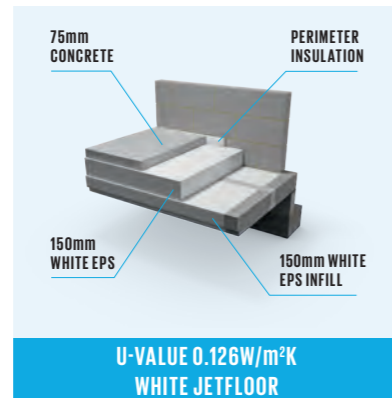
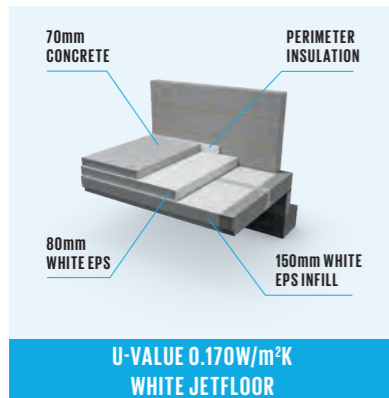
Forterra produces an extensive range of cost-effective flooring solutions that contribute towards achieving lower U-values.

### Backstop Values

		Part L: 2013	Part L: 2021
Floors	New fabric elements in new dwellings	0.25	0.18
	New fabric elements in existing dwellings	0.22	0.18

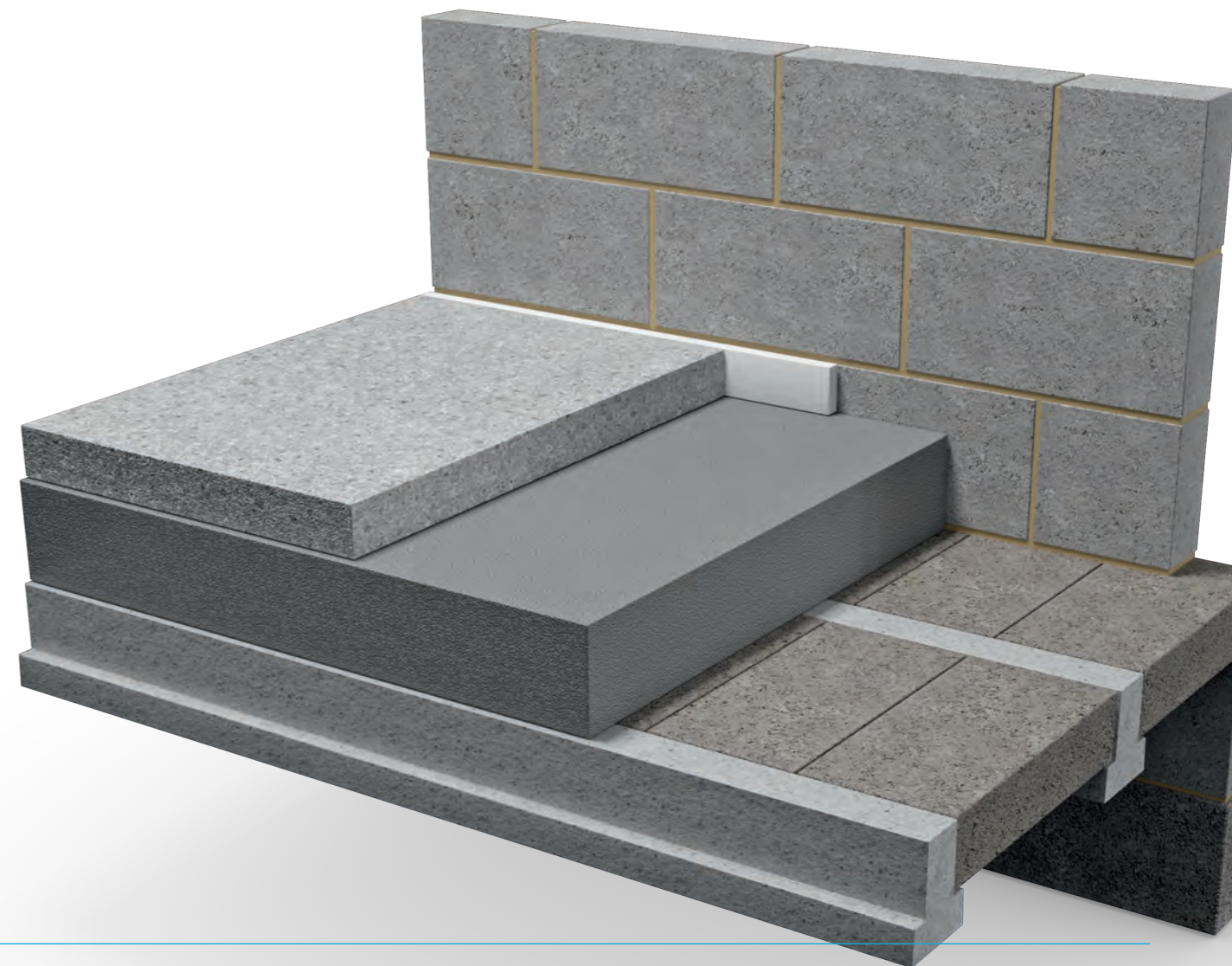
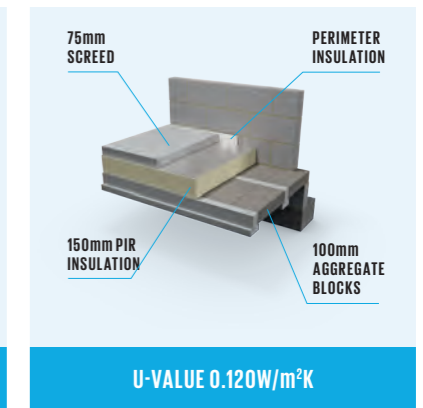
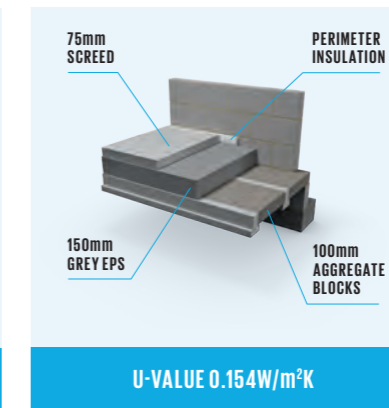
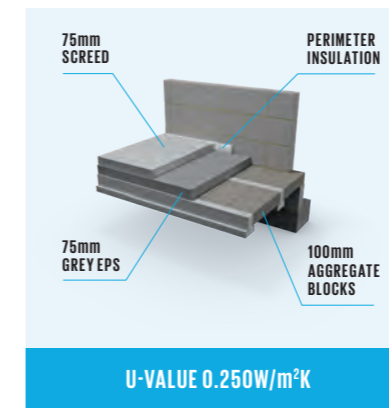
## Jetfloor

Jetfloor insulated ground floors bring together structural and thermal performance in one insulated ground floor solution. Our latest development of Jetfloor presents the platform for a range of U-values and enhanced Psi values, providing a future-proofed robust solution for housebuilders, specifiers and homeowners.



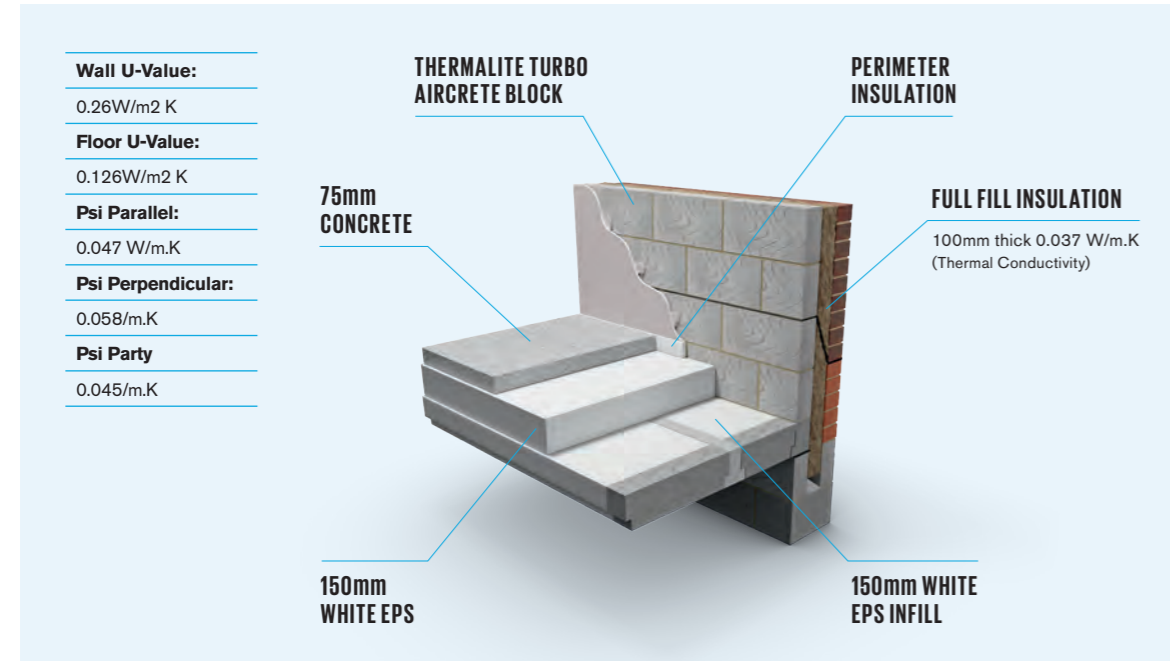
## Beam & Block

The Bison Precast beam and block flooring system consists of inverted pre-stressed T-beams with either aircrete or aggregate block infill. Sound reduction, fire resistance and thermal mass are amongst its key benefits which can contribute to meeting the thermal requirements of Building Regulations and the uplift to Part L.



## Psi Values

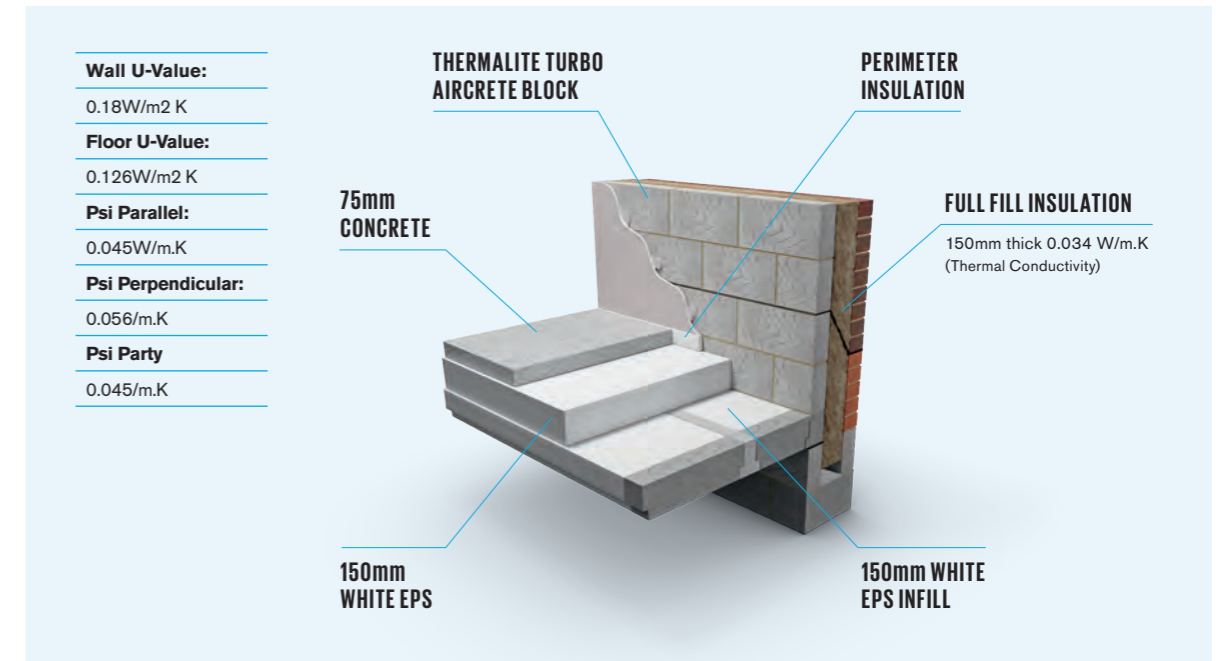
In the new Part L uplift, there are no changes to Psi values or the way they are measured; however, the all-important wall to floor junction where heat loss can be greatest will come under closer scrutiny due to changes to BREL & SAP.



Flooring	EPS	P/A	U Value	Psi	Value
White Jetfloor	80mm - 0.034	0.6	0.170	Parallel Perpendicular Party	0.048 0.067 0.058
Grey Jetfloor	80mm - 0.030	0.6	0.147	Parallel Perpendicular Party	0.049 0.063 0.056
Grey Jetfloor	75mm PIR - 0.021	0.6	0.13	Parallel Perpendicular Party	0.048 0.063 0.054
Grey Jetfloor	150mm - 0.030	0.6	0.11	Parallel Perpendicular Party	0.049 0.057 0.043
Beam & Block	80mm - 0.030	0.6	0.24	Parallel Perpendicular Party	0.033 0.041 0.103
Beam & Block	150mm - 0.030	0.6	0.154	Parallel Perpendicular Party	0.038 0.045 0.081
Beam & Block	150mm PIR - 0.021	0.6	0.12	Parallel Perpendicular Party	0.038 0.042 0.078
1200JTS 375mm	25mm Grey EPS	0.6	0.123	Parallel Perpendicular Party	0.045 0.096 0.067

\*values are for the wall construction demonstrated in the illustration

The Psi values that can be achieved with our floor products are the lowest on the market and we can support you further by providing Psi values for all our flooring products.



Flooring	EPS	P/A	U Value	Psi	Value
White Jetfloor	80mm - 0.034	0.6	0.170	Parallel Perpendicular Party	0.053 0.066 0.058
Grey Jetfloor	80mm - 0.030	0.6	0.147	Parallel Perpendicular Party	0.052 0.07 0.056
Grey Jetfloor	75mm PIR - 0.021	0.6	0.13	Parallel Perpendicular Party	0.048 0.065 0.054
Grey Jetfloor	150mm - 0.030	0.6	0.11	Parallel Perpendicular Party	0.048 0.059 0.043
Beam & Block	80mm - 0.030	0.6	0.24	Parallel Perpendicular Party	0.038 0.046 0.103
Beam & Block	150mm - 0.030	0.6	0.154	Parallel Perpendicular Party	0.042 0.048 0.081
Beam & Block	150mm PIR - 0.021	0.6	0.12	Parallel Perpendicular Party	0.042 0.049 0.078
1200JTS 375mm	25mm Grey EPS	0.6	0.123	Parallel Perpendicular Party	0.041 0.071 0.067

\*values are for the wall construction demonstrated in the illustration

# Technical data for walls

<b>Insulation Thickness (mm)</b>	75	100	125	150	75	85	100	125	150	75	100	125	150	100	125	150	100*	100**
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.037	0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.034	0.034	0.032	0.032	0.032	0.032	0.032
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	277.5	302.5	327.5	352.5	277.5	287.5	302.5	327.5	352.5	277.5	287.5	302.5	327.5	302.5	327.5	352.5	302.5	302.5
<b>Total Wall Thickness (mm) :</b>	307.0	332.0	357.0	382.0	307.0	317.0	332.0	357.0	382.0	307.0	317.0	332.0	357.0	332.0	357.0	382.0	362.0	367.0
<b>Block Type</b>																		
<b>Turbo</b>	0.31	0.26	0.22	0.19	0.30	0.28	0.25	0.21	0.19	0.29	0.29	0.24	0.20	0.23	0.20	0.17		
<b>Shield</b>	0.32	0.27	0.23	0.20	0.32	0.29	0.26	0.22	0.19	0.31	0.31	0.25	0.21	0.24	0.20	0.17		
<b>Hi-7</b>	0.33	0.27	0.23	0.20	0.33	0.30	0.27	0.23	0.19	0.31	0.31	0.26	0.22	0.24	0.21	0.18		
<b>Fenlite</b>	0.37	0.29	0.25	0.21	0.36	0.33	0.29	0.24	0.21	0.34	0.34	0.27	0.23	0.26	0.22	0.19	0.18	0.17
<b>Fenlite 1500</b>	0.37	0.29	0.25	0.21	0.36	0.33	0.29	0.24	0.21	0.35	0.28	0.23	0.20	0.26	0.22	0.19	0.18	0.17
<b>Evalast</b>	0.39	0.31	0.25	0.22	0.38	0.34	0.30	0.25	0.21	0.36	0.29	0.24	0.20	0.27	0.22	0.19	0.19	0.18

Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>. \* 42.5mm insulated plasterboard \*\* 47.5mm insulated plasterboard

## Full Fill (Brick)

<b>Insulation Thickness (mm)</b>	75	100	125	150	75	85	100	125	150	75	100	125	150	100	125	150
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.037	0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.036	0.034	0.034	0.034	0.032	0.032	0.032
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	294.0	319.0	344.0	369.0	294.0	304.0	319.0	344.0	369.0	294.0	319.0	344.0	369.0	319.0	344.0	369.0
<b>Total Wall Thickness (mm) :</b>	323.5	348.5	373.5	398.5	323.5	333.5	348.5	373.5	398.5	323.5	348.5	373.5	398.5	348.5	373.5	398.5
<b>Block Type</b>																
<b>Turbo</b>	0.28	0.24	0.20	0.18	0.28	0.26	0.23	0.20	0.18	0.27	0.27	0.22	0.19	0.21	0.18	0.16
<b>Shield</b>	0.29	0.25	0.21	0.18	0.29	0.27	0.24	0.21	0.18	0.28	0.28	0.23	0.20	0.22	0.19	0.17
<b>Hi-7</b>	0.30	0.25	0.21	0.19	0.30	0.27	0.25	0.21	0.18	0.29	0.29	0.24	0.20	0.23	0.19	0.17
<b>Fenlite</b>	0.33	0.27	0.23	0.20	0.32	0.30	0.26	0.22	0.19	0.31	0.25	0.21	0.18	0.24	0.20	0.18
<b>Fenlite 1500</b>	0.33	0.27	0.23	0.20	0.32	0.30	0.26	0.22	0.19	0.31	0.25	0.21	0.18	0.24	0.20	0.18
<b>Evalast</b>	0.34	0.28	0.23	0.20	0.34	0.31	0.27	0.23	0.20	0.32	0.26	0.22	0.19	0.25	0.21	0.18

Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>. External block thermal conductivity 0.16W/m.K. Render thermal conductivity 1 W/m.K

## Full Fill (Block)

<b>Insulation Thickness (mm)</b>	40	50	60	70	80	90	100	40	50	60	75	85	100
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.022	0.022	0.022	0.022	0.022	0.022
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	292.5	302.5	312.5	322.5	332.5	342.5	352.5	292.5	302.5	312.5	327.5	337.5	352.5
<b>Total Wall Thickness (mm) :</b>	322.0	332.0	342.0	352.0	362.0	372.0	382.0	322.0	332.0	342.0	357.0	367.0	382.0
<b>Block Type</b>													
<b>Turbo</b>	0.25	0.22	0.20	0.18	0.17	0.15	0.14	0.27	0.24	0.22	0.19	0.17	0.16
<b>Shield</b>	0.26	0.23	0.21	0.19	0.17	0.16	0.15	0.28	0.25	0.23	0.20	0.18	0.16
<b>Hi-7</b>	0.27	0.24	0.21	0.19	0.17	0.16	0.15	0.29	0.26	0.23	0.20	0.18	0.16
<b>Fenlite</b>	0.29	0.25	0.22	0.20	0.18	0.17	0.15	0.32	0.28	0.25	0.21	0.19	0.17
<b>Fenlite 1500</b>	0.29	0.26	0.22	0.20	0.18	0.17	0.15	0.32	0.28	0.25	0.21	0.19	0.17
<b>Evalast</b>	0.30	0.26	0.23	0.21	0.19	0.17	0.16	0.33	0.29	0.25	0.22	0.20	0.17

Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>

## Partial Fill (Bricks)

<b>Insulation Thickness (mm)</b>	40	50	60	70	80	90	100	40	50	60	75	85	100
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.022	0.022	0.022	0.022	0.022	0.022
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	309.0	319.0	329.0	339.0	349.0	359.0	369.0	309.0	319.0	329.0	344.0	354.0	369.0
<b>Total Wall Thickness (mm) :</b>	338.5	348.5	358.5	368.5	378.5	388.5	398.5	338.5	348.5	358.5	373.5	383.5	398.5
<b>Block Type</b>													
<b>Turbo</b>	0.23	0.21	0.18	0.17	0.16	0.14	0.13	0.25	0.22	0.20	0.18	0.17	0.15
<b>Shield</b>	0.24	0.21	0.19	0.17	0.16	0.15	0.14	0.26	0.23	0.21	0.18	0.17	0.15
<b>Hi-7</b>	0.24	0.22	0.19	0.18	0.16	0.15	0.14	0.27	0.24	0.21	0.19	0.17	0.16
<b>Fenlite</b>	0.25	0.23	0.20	0.19	0.17	0.16	0.14	0.29	0.25	0.23	0.20	0.18	0.16
<b>Fenlite 1500</b>	0.26	0.23	0.20	0.19	0.17	0.16	0.14	0.29	0.25	0.23	0.20	0.18	0.16
<b>Evalast</b>	0.27	0.24	0.21	0.19	0.17	0.16	0.15	0.30	0.26	0.24	0.20	0.19	0.17

Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>. External block thermal conductivity 0.16W/m.K. Render thermal conductivity 1 W/m.K

## Partial Fill (Blocks)

<b>Insulation Thickness (mm)</b>	100	125	150
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.021	0.021	0.021
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	302.5	327.5	352.5
<b>Total Wall Thickness (mm) :</b>	332.0	357.0	382.0
<b>Block Type</b>			
<b>Turbo</b>	0.17	0.14	0.12
<b>Shield</b>	0.18	0.15	0.13
<b>Hi-7</b>	0.18	0.15	0.13
<b>Fenlite</b>	0.19	0.16	0.13
<b>Fenlite 1500</b>	0.19	0.16	0.13
<b>Evalast</b>	0.20	0.16	0.13

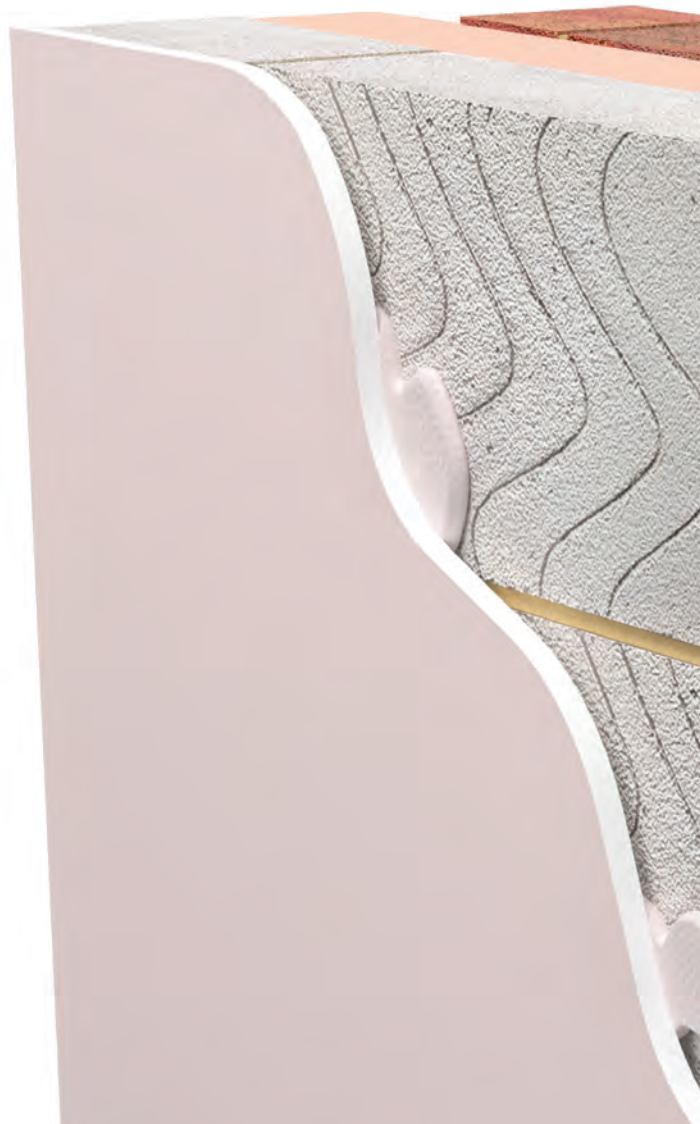
Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>

## Hybrid (Bricks)

<b>Insulation Thickness (mm)</b>	100	125	150
<b>Insulation Thermal Conductivity (W/m.K)</b>	0.021	0.021	0.021
<b>Wall Thickness excluding Internal Finishes (mm) :</b>	219.0	244.0	269.0
<b>Total Wall Thickness (mm) :</b>	219.0	244.0	269.0
<b>Block Type</b>			
<b>Turbo</b>	0.17	0.14	0.12
<b>Shield</b>	0.17	0.14	0.12
<b>Hi-7</b>	0.17	0.14	0.12
<b>Fenlite</b>	0.18	0.15	0.13
<b>Fenlite 1500</b>	0.18	0.15	0.13
<b>Evalast</b>	0.18	0.15	0.13

Assumes plasterboard on dabs internal finish. Blockwork mortar thermal conductivity 0.88 W/m.K with a fraction of 0.067. Clay brick thermal conductivity 0.77 W/m.K, mortar thermal conductivity 0.94 with a fraction of 0.17. Assumes 2.5 no. wall ties / m<sup>2</sup>

## Hybrid (Block)



**Forterra plc**  
5 Grange Park Court  
Roman Way  
Northampton  
NN4 5EA

+44 (0) 1604 707600

