



# U Values Using our range of concrete blocks

A series of example wall and floor constructions using our blocks to meet a range of target u-values

# Serving the construction industry since 1830

This brochure contains over 900 individual u-value calculations for most common masonry wall types using the Thomas Armstrong group's range of concrete blocks. Although by no means exhaustive, this set of data aims to provide solutions to achieving a range of u-values in most scenarios.

The target u-values contained here encompass both current and likely future requirements imposed by the Building Regulations including zero carbon homes.

Each table shows the simplest options for achieving the target u-value for each block type used. However, there will be alternative options available with other insulation types and for specific u-value calculations, please contact our Technical Department.

The information contained here is designed to offer the most economical solutions, keeping cavity widths to a minimum wherever possible.



We are certified to BS EN ISO 9001:2015, BS EN ISO 14001:2015 and possess BES 6001 Responsible Sourcing 'Excellent' rating for our Airtec and aggregate block production.



Airtec blocks are BBA certified - cert no. 06/4309



All of the products in our concrete block and block paving ranges are manufactured and sold in compliance with CE-marking requirements. CE Certificates and Declarations of Performance certificates for each of our products are freely available to download from:

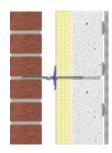
www.thomasarmstrongconcreteblocks.co.uk/ce-certificates

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Calculations are made in good faith and are based upon the data provided by insulation manufacturers at the time. However, such data is liable to change without prior notice from the manufacturer and we recommend that verification calculations are carried out at the design stage based upon the very latest available data.

The calculations shown here are intended for indicative use only and Thomas Armstrong Limited and its associated companies cannot be held liable for any incidental or consequential damage or loss arising from the use of this data.



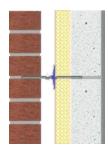
Brick outer leaf, 50mm clear cavity

100mm block inner leaf using 10mm conventional mortar

Plasterboard dot & dab internal finish

	<b>0.28</b>	<b>0.25</b>	<b>0.22</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	30mm PIR/PU @ 0.018	35mm PIR/PU @ 0.018	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	85mm PIR/PU @ 0.018
2.9N	35mm PIR/PU @ 0.022	45mm PIR/PU @ 0.022	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	100mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 55mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022
Ultralite	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	75mm PIR/PU @ 0.018 90mm PIR/PU @ 0.022	95mm PIR/PU @ 0.018 115mm PIR/PU @ 0.022
Insulite	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	75mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	115mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Cellular	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Solid	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used



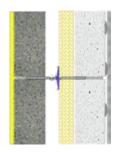
Brick outer leaf, 50mm clear cavity

100mm block inner leaf using 10mm conventional mortar

Wet Plaster

	<b>0.28</b>	<b>0.25</b>	<b>0.22</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	35mm PIR/PU @ 0.018	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	85mm PIR/PU @ 0.018
2.9N	40mm PIR/PU @ 0.022	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	105mm PIR/PU @ 0.022
Airtec Standard 3.6N	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 55mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 90mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 115mm PIR/PU @ 0.022
Ultralite	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022
Insulite	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	125mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Cellular	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	100mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Solid	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	90mm PIR/PU @ 0.022	110mm PIR/PU @ 0.022	125mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used



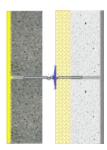
Rendered 100mm Insulite block outer leaf, 50mm clear cavity

100mm block inner leaf using 10mm conventional mortar

Plasterboard dot & dab internal finish

	<b>0.28</b>	<b>0.25</b>	<b>0.22</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	30mm PIR/PU @ 0.018	35mm PIR/PU @ 0.018	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018
2.9N	35mm PIR/PU @ 0.022	45mm PIR/PU @ 0.022	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	100mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 35mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022
Ultralite	40mm PIR/PU @ 0.018	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	75mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
	50mm PIR/PU @ 0.022	55mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	90mm PIR/PU @ 0.022	115mm PIR/PU @ 0.022
Insulite	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	75mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	90mm PIR/PU @ 0.022	115mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	75mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
Cellular	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	115mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
Solid	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used



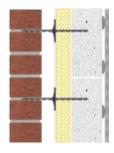
Rendered 100mm Insulite block outer leaf, 50mm clear cavity

100mm block inner leaf using 10mm conventional mortar

Wet Plaster

	<b>0.28</b>	<b>0.25</b>	<b>0.22</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	30mm PIR/PU @ 0.018	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	85mm PIR/PU @ 0.018
2.9N	40mm PIR/PU @ 0.022	45mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	105mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022
Airtec Seven 7.3N	40mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 55mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	75mm PIR/PU @ 0.018 90mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022
Ultralite	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	75mm PIR/PU @ 0.018	95mm PIR/PU @ 0.018
	50mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	70mm PIR/PU @ 0.022	80mm PIR/PU @ 0.022	90mm PIR/PU @ 0.022	115mm PIR/PU @ 0.022
Insulite	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
	55mm PIR/PU @ 0.022	60mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Cellular	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	95mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022
Dense	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018	100mm PIR/PU @ 0.018
Solid	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	85mm PIR/PU @ 0.022	100mm PIR/PU @ 0.022	120mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used

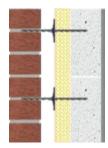


Brick outer leaf, 50mm clear cavity

100mm block inner leaf using 2mm thin joint mortar

Plasterboard dot & dab internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	25mm PIR/PU @ 0.018 30mm PIR/PU @ 0.022	35mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018 95mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 35mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 100mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022



#### Table 06

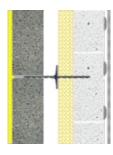
Brick outer leaf, 50mm clear cavity

100mm block inner leaf using 2mm thin joint mortar

Wet plaster internal finish

	<b>0.28</b>	<b>0.25</b>	<b>0.22</b>	<b>0.20</b>	<b>0.18</b>	<b>0.15</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	30mm PIR/PU @ 0.018	35mm PIR/PU @ 0.018	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	85mm PIR/PU @ 0.018
2.9N		45mm PIR/PU @ 0.022	55mm PIR/PU @ 0.022	65mm PIR/PU @ 0.022	75mm PIR/PU @ 0.022	100mm PIR/PU @ 0.022
Airtec Standard 3.6N	35mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022
Airtec Seven 7.3N	40mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018 55mm PIR/PU @ 0.022	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018 75mm PIR/PU @ 0.022	75mm PIR/PU @ 0.018 90mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used All calculations are carried out in accordance with the latest methods as described in BS EN ISO 6946. A correction level of zero has been used which assumes all joints between insulation batts are sealed up. The figures shown are intended for indicative purposes only . For specific calculations please contact one of our sales offices.

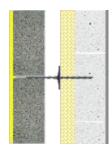


Rendered 100mm Insulite block outer leaf, 50mm clear cavity

100mm block inner leaf using 2mm thin joint mortar

Plasterboard dot & dab internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	25mm PIR/PU @ 0.018	35mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018	50mm PIR/PU @ 0.018	60mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018 95mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 35mm PIR/PU @ 0.022	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018 100mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022



#### Table 08

Rendered 100mm Insulite block outer leaf, 50mm clear cavity

100mm block inner leaf using 2mm thin joint mortar

Wet plaster internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	30mm PIR/PU @ 0.018	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	65mm PIR/PU @ 0.018	80mm PIR/PU @ 0.018 100mm PIR/PU @ 0.022
Airtec Standard 3.6N	30mm PIR/PU @ 0.018 40mm PIR/PU @ 0.022	40mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	50mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	85mm PIR/PU @ 0.018 105mm PIR/PU @ 0.022
Airtec Seven 7.3N	35mm PIR/PU @ 0.018 45mm PIR/PU @ 0.022	45mm PIR/PU @ 0.018	55mm PIR/PU @ 0.018 65mm PIR/PU @ 0.022	60mm PIR/PU @ 0.018	70mm PIR/PU @ 0.018 85mm PIR/PU @ 0.022	90mm PIR/PU @ 0.018 110mm PIR/PU @ 0.022

Note: The thickness of insulation quoted above is the minimum amount required to meet the target but may not be available. Therefore the next available size up should be used All calculations are carried out in accordance with the latest methods as described in BS EN ISO 6946. A correction level of zero has been used which assumes all joints between insulation batts are sealed up. The figures shown are intended for indicative purposes only . For specific calculations please contact one of our sales offices.

# **Fully Filled Cavity Walls**



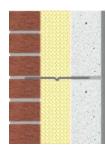
## Table 09

Brick outer leaf

100mm block inner leaf using 10mm conventional mortar

Plasterboard dot & dab or insulated drylining internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	100mm Blown	100mm batt @ 0.037	100mm batt @ 0.021 125mm batt @ 0.037	125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.032	100mm batt @ 0.021 + 20mm insulated drylining
Airtec Standard 3.6N	100mm Blown	100mm batt @ 0.034	125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	100mm batt @ 0.021 + 20mm insulated drylining
Airtec Seven 7.3N	100mm batt @ 0.037	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 + 25mm insulated drylining
Ultralite	100mm batt @ 0.036	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 + 25mm insulated drylining
Insulite	100mm batt @ 0.034	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	150mm batt @ 0.030	100mm batt @ 0.021 + 30mm insulated drylining
Dense Cellular	100mm batt @ 0.032	125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	150mm batt @ 0.030	100mm batt @ 0.021 + 35mm insulated drylining
Dense Solid	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021	150mm batt @ 0.030	100mm batt @ 0.021 + 35mm insulated drylining



Brick outer leaf

100mm block inner leaf using 10mm conventional mortar

Wet Plaster (insulated drylining is not an option)

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	100mm Blown	100mm batt @ 0.034	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021 150mm batt @ 0.032	
Airtec Standard 3.6N	100mm Blown	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021	
Airtec Seven 7.3N	100mm batt @ 0.034	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	150mm batt @ 0.030	Cavities wider than 150mm are required
Ultralite	100mm batt @ 0.034	125mm batt @ 0.037	125mm batt @ 0.030	100mm batt @ 0.021 150mm batt @ 0.032	150mm batt @ 0.030	
Insulite	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	150mm batt @ 0.030	Cavities wider than 150mm are required	
Dense Cellular	100mm batt @ 0.030	125mm batt @ 0.034	150mm batt @ 0.034	150mm batt @ 0.030	to achieve u-values of 0.15 W/m²K.  Please contact our Technical Department for specific calculations.	
Dense Solid	100mm batt @ 0.030	125mm batt @ 0.034	125mm batt @ 0.034	150mm batt @ 0.030		

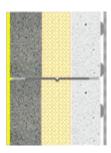


Table 11

Rendered 100mm Insulite block outer leaf

100mm block inner leaf using 10mm conventional mortar

Plasterboard dot & dab or insulated drylining internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	100mm Blown	100mm Blown	100mm batt @ 0.032 125mm batt @ 0.037	100mm batt @ 0.021	100mm batt @ 0.021 125mm batt @ 0.030	100mm batt @ 0.021 + 20mm insulated drylining
Airtec Standard 3.6N	100mm Blown	100mm batt @ 0.037	100mm batt @ 0.030	100mm batt @ 0.021 125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 + 25mm insulated drylining
Airtec Seven 7.3N	100mm Blown	100mm batt @ 0.032	125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.030	100mm batt @ 0.021 + 15mm insulated drylining	100mm batt @ 0.021 + 25mm insulated drylining
Ultralite	100mm batt @ 0.037	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021 + 15mm insulated drylining	100mm batt @ 0.021 + 30mm insulated drylining
Insulite	100mm batt @ 0.034	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	100mm batt @ 0.021 + 15mm insulated drylining	100mm batt @ 0.021 + 35mm insulated drylining
Dense Cellular	100mm batt @ 0.034	125mm batt @ 0.037	125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 + 15mm insulated drylining	100mm batt @ 0.021 + 35mm insulated drylining
Dense Solid	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 + 15mm insulated drylining	100mm batt @ 0.021 + 35mm insulated drylining

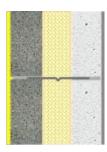


Table 12

Rendered 100mm Insulite block outer leaf

100mm block inner leaf using 10mm conventional mortar

Wet Plaster (insulated drylining is not an option)

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	100mm Blown	100mm batt @ 0.037	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021 125mm batt @ 0.030	
Airtec Standard 3.6N	100mm Blown	125mm batt @ 0.034	125mm batt @ 0.034	125mm batt @ 0.032	100mm batt @ 0.021	
Airtec Seven 7.3N	100mm batt @ 0.037	100mm batt @ 0.032	125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.030	100mm batt @ 0.021	Cavities wider than 150mm are required to achieve u-values of 0.15 W/m²K.  Please contact our Technical Department for specific calculations.
Ultralite	100mm batt @ 0.034	125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	150mm batt @ 0.030	
Insulite	100mm batt @ 0.032	125mm batt @ 0.036	125mm batt @ 0.032	100mm batt @ 0.021	Cavities wider than 150mm are required	
Dense Cellular	100mm batt @ 0.032	125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.030	150mm batt @ 0.030	to achieve u-values of 0.15 W/m²K.	
Dense Solid	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	150mm batt @ 0.030	Technical Department for specific calculations.	

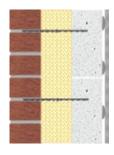


Table 13

Brick outer leaf

100mm block inner leaf using 2mm thin joint mortar

Plasterboard dot & dab or insulated drylining internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K	
Airtec XL 2.9N	80mm Blown	95mm Blown	100mm batt @ 0.034	100mm batt @ 0.032	125mm batt @ 0.032	100mm batt @ 0.021 + 15mm insulated drylining	
Airtec Standard 3.6N	85mm Blown	100mm batt @ 0.037	100mm batt @ 0.032 125mm batt @ 0.037	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021 + 20mm insulated drylining	
Airtec Seven 7.3N	100mm Blown	100mm batt @ 0.034	125mm batt @ 0.036	125mm batt @ 0.032	100mm batt @ 0.021	100mm batt @ 0.021 + 20m insulated drylining	



#### Table 14

Brick outer leaf

100mm block inner leaf using 2mm thin joint mortar

Wet plaster internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	85mm Blown	100mm Blown	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030 100mm batt @ 0.021	Cavities wider than 150mm are required to achieve u-values of
Airtec Standard 3.6N	95mm Blown	100mm batt @ 0.036	125mm batt @ 0.030	100mm batt @ 0.021	100mm batt @ 0.021 150mm batt @ 0.034	0.15W/m²K.  Please contact our
Airtec Seven 7.3N	100mm batt @ 0.037 125mm Blown 125mm		125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.030		Technical Department for specific calculations.

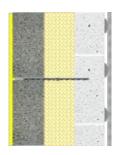


Table 15

Rendered 100mm Insulite block outer leaf

100mm block inner leaf using 2mm thin joint mortar

Plasterboard dot & dab or insulated drylining internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K
Airtec XL 2.9N	80mm Blown	95mm Blown	100mm batt @ 0.034	100mm batt @ 0.030 125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021 + 15mm insulated drylining
Airtec Standard 3.6N	85mm Blown	100mm Blown	100mm batt @ 0.032	125mm batt @ 0.034	125mm batt @ 0.030	100mm batt @ 0.021 + 15mm insulated drylining
Airtec Seven 7.3N	95mm Blown	100mm batt @ 0.034	125mm batt @ 0.037	125mm batt @ 0.032	100mm batt @ 0.021	100mm batt @ 0.021 + 15mm insulated drylining

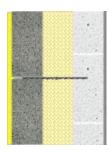


Table 16

Rendered 100mm Insulite block outer leaf,

100mm block inner leaf using 2mm thin joint mortar

Wet plaster internal finish

	<b>0.28</b> W/m²K	<b>0.25</b> W/m²K	<b>0.22</b> W/m²K	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.15</b> W/m²K	
Airtec XL 2.9N	85mm Blown	100mm Blown	125mm batt @ 0.037	125mm batt @ 0.036	125mm batt @ 0.030 100mm batt @ 0.021	Cavities wider than 150mm are required to achieve u-values of	
Airtec Standard 3.6N	90mm Blown	100mm batt @ 0.037		125mm batt @ 0.034	100mm batt @ 0.021 150mm batt @ 0.036	0.15W/m²K.  Please contact our	
Airtec Seven 7.3N	100mm Blown 100mm batt @ 0.032		125mm batt @ 0.034	100mm batt @ 0.021 125mm batt @ 0.030	100mm batt @ 0.021	Technical Department for specific calculations.	

# **Externally Insulated Solid Walls**



Table 17

Solid Airtec 215mm block wall using 2mm thin joint mortar

Wet plaster internal finish

Reinforced render system or brick slip external finish

	<b>0.20</b>	<b>0.18</b>	<b>0.16</b>	<b>0.14</b>	<b>0.12</b>	<b>0.10</b>
	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K	W/m²K
Airtec XL	80mm @ 0.031	100mm @ 0.031	115mm @ 0.031	145mm @ 0.031	180mm @ 0.031	225mm @ 0.031
2.9N	50mm @ 0.020	60mm @ 0.020	80mm @ 0.020	90mm @ 0.020	110mm @ 0.020	145mm @ 0.020
Airtec Standard 3.6N	90mm @ 0.031 60mm @ 0.020	110mm @ 0.031 70mm @ 0.020	130mm @ 0.031 80mm @ 0.020	155mm @ 0.031 100mm @ 0.020	190mm @ 0.031 120mm @ 0.020	240mm @ 0.031 150mm @ 0.020

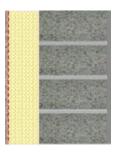


Table 18

Solid Insulite or Dense concrete blocks laid flat using 10mm conventional mortar

Wet plaster internal finish

Reinforced render system or brick slip external finish

	<b>0.20</b> W/m²K	<b>0.18</b> W/m²K	<b>0.16</b> W/m²K	<b>0.14</b> W/m²K	<b>0.12</b> W/m²K	<b>0.10</b> W/m²K
Insulite Aggregate Block	135mm @ 0.031 80mm @ 0.020	155mm @ 0.031 95mm @ 0.020	175mm @ 0.031 110mm @ 0.020	200mm @ 0.031 125mm @ 0.020	235mm @ 0.031 150mm @ 0.020	285mm @ 0.031 180mm @ 0.020
Dense Concrete Block	145mm @ 0.031 90mm @ 0.020	160mm @ 0.031 100mm @ 0.020	180mm @ 0.031 115mm @ 0.020	210mm @ 0.031 130mm @ 0.020	245mm @ 0.031 155mm @ 0.020	295mm @ 0.031 185mm @ 0.020



## Table 19 (continued on next page)

150mm T-beam with 100mm thick block infill

Insulation slabs

Standard Screed, 65mm

		0.22 W/m <sup>2</sup> K			0.20 W/m <sup>2</sup> K						
	P/A Ratio:	0.70	0.60	0.50	0.40	0.30	0.70	0.60	0.50	0.40	0.30
	Expanded Polystyrene (0.038)	95	90	85	80	65	115	110	105	95	80
Airtec	Extruded Polystyrene (0.033)	85	80	75	70	55	100	95	90	85	70
Large Format	Low k Expanded Polystyrene (0.030)	75	75	70	65	50	90	85	80	75	65
	Polyurethane / PIR (0.022)	55	55	50	45	40	65	65	60	55	50
	Expanded Polystyrene (0.038)	110	105	100	90	80	125	120	115	110	95
Insulite	Extruded Polystyrene (0.033)	95	90	85	80	70	110	105	100	95	85
7.3N	Low k Expanded Polystyrene (0.030)	85	85	80	75	60	100	95	90	85	75
	Polyurethane / PIR (0.022)	65	60	60	55	45	75	70	70	65	55
	Expanded Polystyrene (0.038)	115	110	105	95	85	130	125	120	110	100
Solid Dense	Extruded Polystyrene (0.033)	100	95	90	85	70	115	110	105	100	85
7.3N	Low k Expanded Polystyrene (0.030)	90	85	85	75	65	105	100	95	90	80
	Polyurethane / PIR (0.022)	65	65	60	55	50	75	75	70	65	60

The figures in the table show the thickness of insulation required to meet the target U-Values shown.

The P/A values are intended to represent typical house types, from terraced to detached.

The thermal values used for the insulation types are generic and may vary between manufacturers.



## Table 19 (continued)

150mm T-beam with 100mm thick block infill

Insulation slabs

Standard Screed, 65mm

			0.18 W/m <sup>2</sup> K					0.16 W	//m²K		
	P/A Ratio:	0.70	0.60	0.50	0.40	0.30	0.70	0.60	0.50	0.40	0.30
Airtec Large Format	Expanded Polystyrene (0.038)	135	130	125	115	100	160	155	150	140	125
	Extruded Polystyrene (0.033)	115	110	105	100	90	135	135	130	120	110
	Low k Expanded Polystyrene (0.030)	105	100	100	85	80	125	120	115	110	100
	Polyurethane / PIR (0.022)	80	75	70	70	60	90	90	85	80	75
	Expanded Polystyrene (0.038)	145	140	135	130	115	170	165	160	155	140
Insulite	Extruded Polystyrene (0.033)	125	125	120	110	100	150	145	140	135	120
7.3N	Low k Expanded Polystyrene (0.030)	115	110	110	100	90	135	130	130	120	110
	Polyurethane / PIR (0.022)	85	85	80	75	70	100	100	95	90	80
	Expanded Polystyrene (0.038)	150	145	140	130	120	175	170	165	155	145
Solid Dense	Extruded Polystyrene (0.033)	130	125	120	115	105	150	150	145	135	125
7.3N	Low k Expanded Polystyrene (0.030)	120	115	110	105	95	140	135	130	125	115
	Polyurethane / PIR (0.022)	90	85	80	80	70	100	100	95	90	85

The figures in the table show the thickness of insulation required to meet the target U-Values shown.

The P/A values are intended to represent typical house types, from terraced to detached.

The thermal values used for the insulation types are generic and may vary between manufacturers.

As a company policy we are constantly striving to use as much recycled material as possible which is often dependent on the availability of materials, location of the source and their effect on the quality of the blocks.

The majority of our products are manufactured under the ISO 9001 and ISO 14001 Quality & Environmental Management standards.

We possess the highest possible rating of 'Excellent' to the internationally recognised Responsible Sourcing standard BES 6001 and was the very first block manufacturer in the world to achieve this!.

#### **Insulite Lightweight Blocks**

The vast majority of raw material used in our lightweight concrete blocks is fully recycled. In fact 90 - 95% by weight of the block consists of recycled material, predominantly FBA (furnace bottom ash) from coal-fired power stations which would otherwise be landfilled.



#### **Dense Concrete Blocks**

By their nature, dense concrete blocks require a proportion of quarried sand and gravel in order to achieve the desired toughness, strength and density characteristics. We continually strive to utilize as much recycled material as possible and in fact the recycled content of these blocks is around 30% by weight.



#### **Airtec Aerated Concrete Products**

Up to 90% of all raw materials used in the manufacture of our Airtec products is recycled material. Furthermore, Airtec is manufactured in the UK's most advanced aerated product facility utilizing unique low-energy equipment. We re-use excess energy from the curing process throughout the site; nothing is wasted.





NBS Clauses and BIM Objects for our blocks are available at:

www.source.thenbs.com

#### **Reference Table of Our Block Types**

	Airtec XL	Airtec Standard	Airtec Party Wall	Airtec Seven	Ultralite	Insulite	Cellular/ Hollow Dense	Solid Dense
Compressive Strength(s) N/mm <sup>2</sup>	2.9	3.6	3.6	7.3	3.6, 7.3	4.2, 7.3 †	7.3	7.3, 10.4 †
Gross Dry Density kg/m <sup>3</sup>	460	530	600	730	950 - 1050	1450 - 1550	1850 - 2100	1850 - 2100
Design Thermal Inner leaf Conductivity W/mK (Outer leaf)		0.11 (0.12)	0.13 (0.15)	0.17 (0.19)	0.32 (0.34)	0.49 (0.54)	0.88 (0.95)	1.17 (1.26)

† Higher strengths are available to order



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Established 1830

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Blackdyke, Silloth, Cumbria. CA7 4PD :	Tel: 01900 68114	Fax: 01900 66136	cumbriablock sales @thomas arm strong. co.uk
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