Generic External Walls - each column represents a possible wall layer

	<<<	Overall	Thickness	of	the	External	Wall	>>>		Recommended Minimal U-values W/m2degC	Wall thickness mm	Residential Construction ADoc L1A & L2B U-value Calculation Reference & File Name
Dormer	2	0	12	25		80	25	80	25	15	0.13	264 K D-Wall 0.13 10f25c9t100i70i15p.pdf
Dormer	2	0	12	25		75	25	75	25	13	0.14	252 C D-Wall 0.14 2f12t25c75i25c75i25c13p.pdf
Dormer	10	25	9	25		75		60		15	0.15	219 K D-Wall 0.15 10b25c9c25c75i60i15p.pdf
Dormer	10	25	12	40		60		60		13	0.17	220 Q D-Wall 0.17 10f25c12t60i40c60i13p.pdf
Dormer	15	25	18	25	75			75	25	15	0.17	273 X D-Wall 0.17 15f25c18t25c75i75i25c15p.pdf
Dormer	15	25	13			100			25	15	0.28	193 C D-Wall 0.28 13t100i25c15p
Brick CW			103	10		115	100		15	15	0.13	358 K C-Wall 0.13 103b10c115i100b15c15p.pdf
Brick CW			103	10		90	100		25	15	0.17	343 K C-Wall 0.17 103b10c90i100b25c15p.pdf
Brick CW			103	10		100	100		15	15	0.17	343 Q C-Wall 0.17 103b10c90i100b15c15p.pdf
Brick CW			103	10	50	50	100		25	15	0.17	353 X C-Wall 0.17 103b10c50i50i25c15p.pdf
Brick CW			103	50		50	100		15	13	# 0.28	331 C C-Wall 0.28 103b50c50i100b15c13p
Brick CW			103	50		40	100		15	13	0.30	321 K C-Wall 0.30 103b50c40i100b.pdf
Brick Soild			215					140	25	15	0.13	395 C S-Wall 0.13 215b140i25c13p.pdf
Brick Soild			215				25	90		15	0.18	345 K S-Wall 0.18 215b25t90i15p.pdf
Brick Soild			215					100	25	13	0.18	353 C S-Wall 0.18 215b100i25c13p.pdf
Brick Soild			215				15	100	25	13	0.18	368 Q S-Wall 0.18 215b15p100i25c13p.pdf
Brick Soild			215	25				100	25	15	0.17	380 X S-Wall 0.17 215b25c100i25c15p
Brick Soild			215					55	25	13	0.28	308 C S-Wall 0.28 215b55i25c13p
	external surface	external finish***	cavity*(ventilated)	external skin	cavity * (drained)	insulation	insulation	int skin	internal insulation	service void**	internal finish	internal surface
SIPS	10	38	142						50	25	15	0.13	280 K P-Wall 0.13 10f38c142SIPS50i25c13p.pdf
SIPS	10	38	142						25	25	15	0.15	255 K P-Wall 0.15 10f38c142SIPS25i25c13p.pdf
SIPS	10	38	142						20	25	15	0.16	250 K P-Wall 0.16 10f38c142SIPS20i25c13p.pdf
SIPS	10	38	142							25	15	0.20	230 K P-Wall 0.20 10f38c142SIPS25c13p.pdf
			142mm SIPS									0.28	Not possible 0.20 is poorest U-value with SIPS
			Load bearing wall replaced by SIPS										
			(Structural Insulated Panel)										

<< Line of Breather Layer if required

<< Line of Vapour Barrier if required

----------Summary----------
160mm insulation gives 0.13 U-value ____
100mm insulation gives 0.18 U-value____
50mm insulation gives 0.28 U-value ____
40mm insulation gives 0.30 U-value _____

Walls Thermal Insulation for Homeowners

Notes

*If well ventilated then external layer disregarded - 25mm is normal
** 25mm service void recommended for electrics & plumbing
*** Render or cladding finish does not change U-value result
# 100mm of mineral wool will give same U-value result ar 50mm foil faced insulation

Calculation Sources for foil faced insulation

Celotex	https://www.celotex.co.uk/member/dashboard
Kingspan	https://www.uvalue-calculator.co.uk/calculator/
Quinn	https://uvaluecalculator.quinn-buildingproducts.com/
YourSpreadsheets	https://www.yourspreadsheets.co.uk/u-value-calculator-to-bs-en-iso-6946.html
REF:	https://www.homebuilding.co.uk/internal-wall-insulation/

See foot note for pdf File Names/Codes etc...

a vapour barrier to warm side of the insul + service void

Table 4 Summary of concurrent notional dwelling specification

Element or system	Values
Opening areas (windows and doors)	Same as actual dwelling up to a maximum proportion of 25% of total floor area[1]
External walls (including opaque elements of curtain walls)	0.18 W/(m²·K)
Party walls	0.0 W/(m²·K)
Floor	0.13 W/(m²·K)
Roof	0.13 W/(m²·K)
Windows, roof windows, glazed roof-lights and glazed doors	1.4 W/(m²·K) (whole window U-value)[2]
	g-value = 0.63[3]
Opaque doors	1.0 W/(m²·K)
Semi-glazed doors	1.2 W/(m²·K)
Airtightness	5.0 m³/(h·m²)
Linear thermal transmittance	Standardised psi values – see SAP 2012 Appendix R, except use of y = 0.05 W/(m²·K) if the default value of y = 0.15 W/(m²·K) is used in the actual dwelling
Ventilation type	Natural (with extract fans)[4]
Air-conditioning	None

<< From Approved Document L1A

<< 0.18 or lower why not 0.13?

<< 0.13 or lower
<< 0.13 or lower

Walls Thermal Insulation for Homeowners

OWLarchitecture.com
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Footnote for pdf filenames - PREFIX: C is Celotex Calculation, K is Kingspan Calc, Q is Quinn Calc, X is Generic Calc, Z is Belt & Braces Calculation
2nd Letter: C is Cavity Wall, D is Dormer Wall, S is Solid Wall, P is a SIPs Wall (Structural Insulated Panel normally 142 mm)
2nd Letter: F is Flat roof, P is Pitched roof insulation at rafters, L is Pitched roof insulation at ceiling joists/Loft
3rd/4the Letter: A is insulation above, B is insulation between eg. rafters, joist and concrete layers etc..., U is insulation under
Thickness of elements in numbers followed by:
(a) is cavity (may be incuding space betwen joists etc..., (b) is brick/block, (c) is concrete, (f) is finish, (i) is insulation, (m) is stone masonry,
(p) is plaster, (s) is screed, (t) is timber or board, (c-c) is centre to centre PA is Perimeter/Area ratio