

# System performance characteristics

## Thermal

### U-value tables

Approved Document L2 of the Building Regulations requires that the full thermal bridging effect of a building fabric element be taken into account when calculating its U-value.

The thermal bridging effect that the aluminium clips have on the U-value of a Kalzip roof system is dependent upon the frequency of clips (clips/m<sup>2</sup>) penetrating

the insulation layer. This frequency will, in turn, be dependent upon the specific project loading requirements, purlin centres and load capacity of the Kalzip system.

The U-value tables cover a range of support centres (1m to 2.8m) and a range of mineral fibre insulants with differing thermal conductivities.

The U-value tables have been derived from hot-box testing carried out to BS EN ISO 8990:1996 - Thermal Insulation - Determination of steady-state thermal transmission properties - Calibrated hot box. It should be noted that Approved Document L2 gives preference to testing over calculation methods when determining U-values.

## Kalzip with liner using E clips

The use of E clips means that the cover width of the Kalzip sheet has no effect on the overall system performance.

### E180 clips and thermal conductivities ( $\lambda_{90/90}$ - values of 0.040 W/mK to 0.032 W/mK).

#### U-values (W/m<sup>2</sup>K)

##### Kalzip liner roof system with E180 clips

$\lambda_{90/90}$ value (W/mK)	Kalzip 65/400 with TR35/200	Kalzip 65/305 with TR30/152 Kalzip 65/500 with TR30/167	Kalzip 50/429 with TR35/215	Kalzip 50/333 with TR30/167
	145mm thick	150mm thick	160mm thick	165mm thick
0.040	0.27	0.26	0.24	0.23
0.037	0.25	0.24	0.22	0.22
0.035	0.23	0.23	0.21	0.20
0.032	0.21	0.21	0.19	0.19

For information on U-values with Kalzip liner using E clips and spacer please contact the Kalzip technical department.

## Kalzip with decking using E clips

### Various E clips and thermal conductivities ( $\lambda_{90/90}$ - values of 0.040 W/mK to 0.032 W/mK).

#### U-values (W/m<sup>2</sup>K)

##### Kalzip deck roof system with E clips

$\lambda_{90/90}$ (W/mK)	value Kalzip 65	E140 Clip Kalzip 50	Kalzip 65	E160 Clip Kalzip 50	Kalzip 65	E180 Clip Kalzip 50
	140mm thick	155mm thick	160mm thick	175mm thick	180mm thick	195mm thick
0.040	0.27	0.25	0.24	0.22	0.22	0.20
0.037	0.25	0.23	0.22	0.21	0.20	0.18
0.035	0.24	0.22	0.21	0.19	0.19	0.18
0.032	0.22	0.20	0.19	0.18	0.17	0.16

For information on U-values with Kalzip decking using E clips and spacer please contact the Kalzip technical department.

#### Notes:

Figures in red denote the values established, are not compliant with ADL2.

All U-value calculations are affected by clip frequencies, sheet lengths, insulation types and actual purlin positions. The information contained in this document is for guidance only, for accurate calculations please refer to the Kalzip technical department.