

### Project Information

Date 2013  
 Client Grahame White  
 OWLarchitecture.com  
 25 Crescent View, Leeds, LS17 7QF

Project General  
 Refurbishment

### Celotex Limited

Lady Lane Industrial Estate  
 Hadleigh, Ipswich  
 Suffolk IP7 6BA  
 Tel: 01473 820850

Email: technical@celotex.co.uk

### Construction Type

Element	: Pitched roof, ceiling at rafter line – Pitched Roofs – Un-ventilated – Insulation Between & Below Rafters 450mm Rafter Spacing				
Internal surface emissivity	: High	External surface emissivity	: High		
	Thickness	Thermal Conductivity	Thermal Resistance	Pitch	Bridge Details
	(mm)	(W/mK)	(m <sup>2</sup> K/W)	(°)	
Outside surface resistance	–	–			
Tiling including batten space		0.040			
Breather membrane draped	–	–			
Cavity (low emissivity) between rafters @ 450 ctrs minimum 25mm	–	0.120			10.4% Timber (25.0mm)
Celotex GA4000 between rafters @ 450 ctrs	25.0	–			10.4% Timber (80.0mm)
		0.454			
Celotex GA4000 beneath rafters taped joints as VCL	80.0	–			
Cavity – 25 x 47mm fixing batten between plasterboard and under rafter insulation		3.636			10.4% Timber (25.0mm)
Knauf Wallboard	80.0	–			
Inside surface resistance		3.636			
	25.0	–			
		0.454			
	12.5	–			
		0.066			
	–	–			
		0.100			

### U-value = 0.13W/m<sup>2</sup>K

U-value, Combined Method : 0.13W/m<sup>2</sup>K (upper/lower limit 7.954 / 7.161m<sup>2</sup>K/W, dUf 0.0000, dUg 0.0000, dUp0.0000, dUr0.0000, dUrc0.0000)

(Correction for mechanical fasteners, Delta Uf = 0.000W/m<sup>2</sup>K)

(Correction for air gaps, Delta Ug = 0.000W/m<sup>2</sup>K)

(Based on the combined method for determining U-values of structures containing repeating thermal bridges)