



Serpentine Sackler Gallery

Technical Details

U Value Calculation¹

Outer membrane ² :	$R_{se} = 0.05 \text{ m}^2\text{K/W}$
Air gap (average):	$R_{ag} = 0.65 \text{ m}^2\text{K/W}$
Multifoil:	$R_1 = 1.71 \text{ m}^2\text{K/W}$
Inner membrane ² :	$R_{si} = 0.11 \text{ m}^2\text{K/W}$

Overall heat transfer resistance (R_T):

$$R_T = R_{se} + 3R_{ag} + 2R_1 + R_{si}$$

$$= 0.05 + 3(0.65) + 2(1.71) + 0.11$$

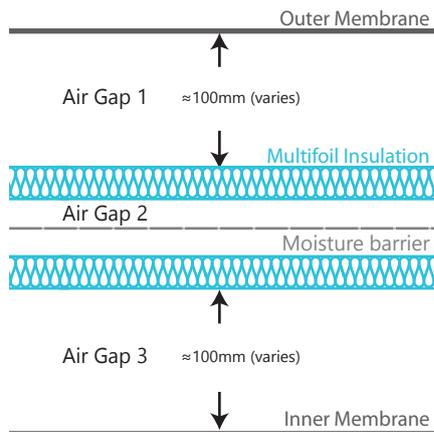
$$= 5.53 \text{ m}^2\text{K/W}$$

$$U = 1/R_T$$

$$= 1/5.53$$

$$= 0.181 \text{ W/m}^2\text{K}$$

Overall U Value = 0.18 W/m²K



PVC Coated Polyester³

Thickness	0.6mm
Weight	850g/m ²
Fire Rating	B1/DIN 4102-1 BS 7837

Multifoil Insulation

Thickness	40-60mm (x2)
Weight	700g/m ² (x2)
Fire Rating	Class E EN 13501-1

Silicone Coated Glass³

Thickness	0.45mm
Weight	340g/m ²
Fire Rating	B1/DIN 4102-1 BS 476 Class O

Long gone are the days when fabric structures were only used in large unheated spaces. Architen Thermal is a high performance system capable of meeting the strict thermal values of an insulated conventional roof, while retaining the virtues of sculptural form and clear span spaces.

The technology behind Architen Thermal is the use of multi-layers, 'sandwiched' together forming the external envelope for virtually any building. The layers include: an outer membrane identical to a normal tensile roof; an insulated multi-foil membrane array suspended beneath the outer layer; and a lightweight inner lining giving the underside of the system a smooth elegant appearance.

By overcoming the thermal limitations usually associated with fabric, Architen Thermal becomes viable as a building material in areas previously 'off-limits' to membrane construction.

¹Thermal values have been calculated generally in accordance with BS EN ISO 6946:2007

²R-values for inner & outer membrane account for internal/external surface thermal resistance

³Layers are indicative, fabric configurations are project specific and alternate membrane build-ups are available on request