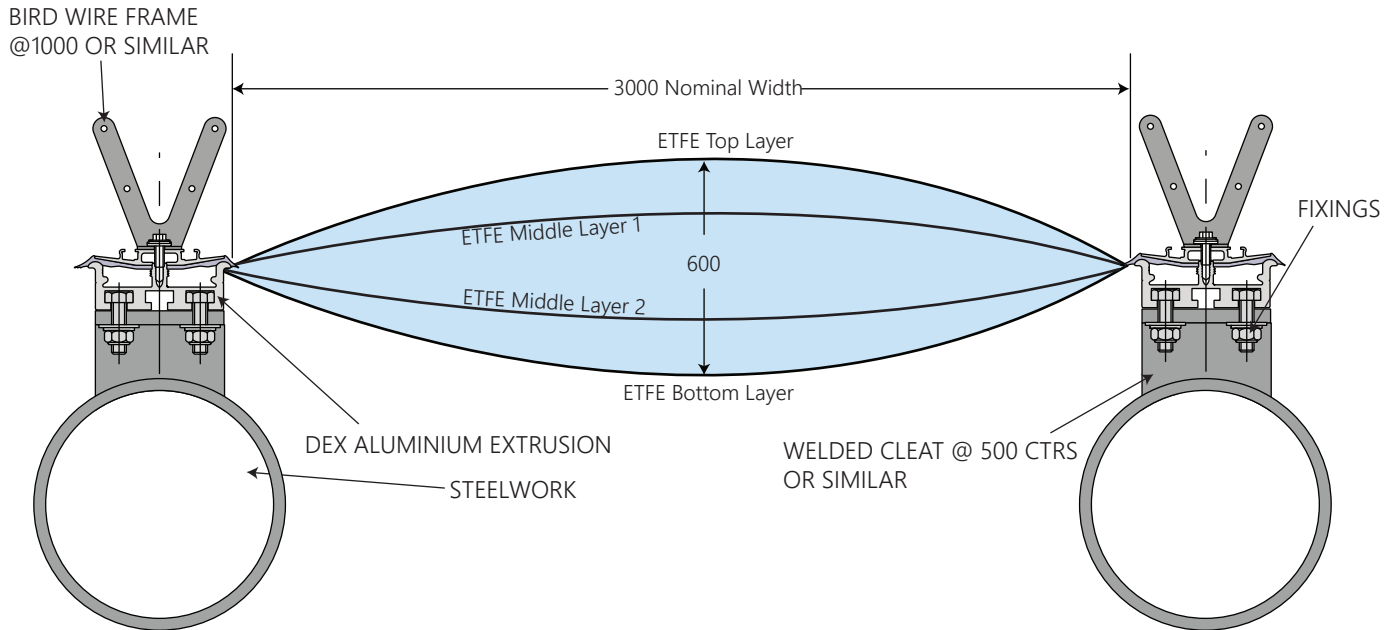


Four Layer ETFE Cushion



U Value Calculation*

Outer Membrane:

$$R_{se} = 0.04 \text{ m}^2\text{K/W}$$

Air chambers (<500mm):

$$R_{1-3} = 0.18 \text{ m}^2\text{K/W}$$

Inner Membrane:

$$R_{si} = 0.13 \text{ m}^2\text{K/W}$$

Overall heat transfer resistance (R_T):

$$\begin{aligned} R_T &= R_e + \Sigma(R_{1-3}) + R_i \\ &= 0.04 + (0.18 + 0.18 + 0.18) + 0.13 \\ &= 0.71 \text{ m}^2\text{K/W} \end{aligned}$$

$$\begin{aligned} U &= 1/R_T \\ &= 1/0.71 \\ &= 1.4 \text{ W/m}^2\text{K} \end{aligned}$$

ETFE Foil - Outer Membrane

Air Chamber 1

ETFE Foil - Middle Membrane

Air Chamber 2

ETFE Foil - Middle Membrane

Air Chamber 3

ETFE Foil - Inner Membrane

ETFE FOIL 100-300 Micron

Mass Per Unit Area

175-525 g/m²

Tensile Strength

55 MPa

Tensile Strength @10% Strain

23 MPa

Tensile Strength At Break

550%

Tear Resistance

400 N/mm

Opacity

3-10%

Sample Width 15mm

Sample Length 100mm

Test Speed 200mm/min

Overall U Value = 1.4 W/m²K

Made of a copolymer extruded into thin films, this durable material can achieve light transmission up to 95%. At 1% the weight of glass, you can watch the bottom line of your project shrink as we reduce the size of steel and foundations required to support this 'floating' system. Systems range from cable supported single layer to insulated multi foil cushions. Cushions range from two to four layers – depending on the required insulation. ETFE cushions are filled with air using an Air Handling Unit (AHU). This unit's job is to maintain the pressure in the system between 200-300 Pa depending on the size of the roof. The AHU is very efficient consuming power equivalent to a 100w light bulb. Widths of panels are up to 3.5m, while lengths are infinite.

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