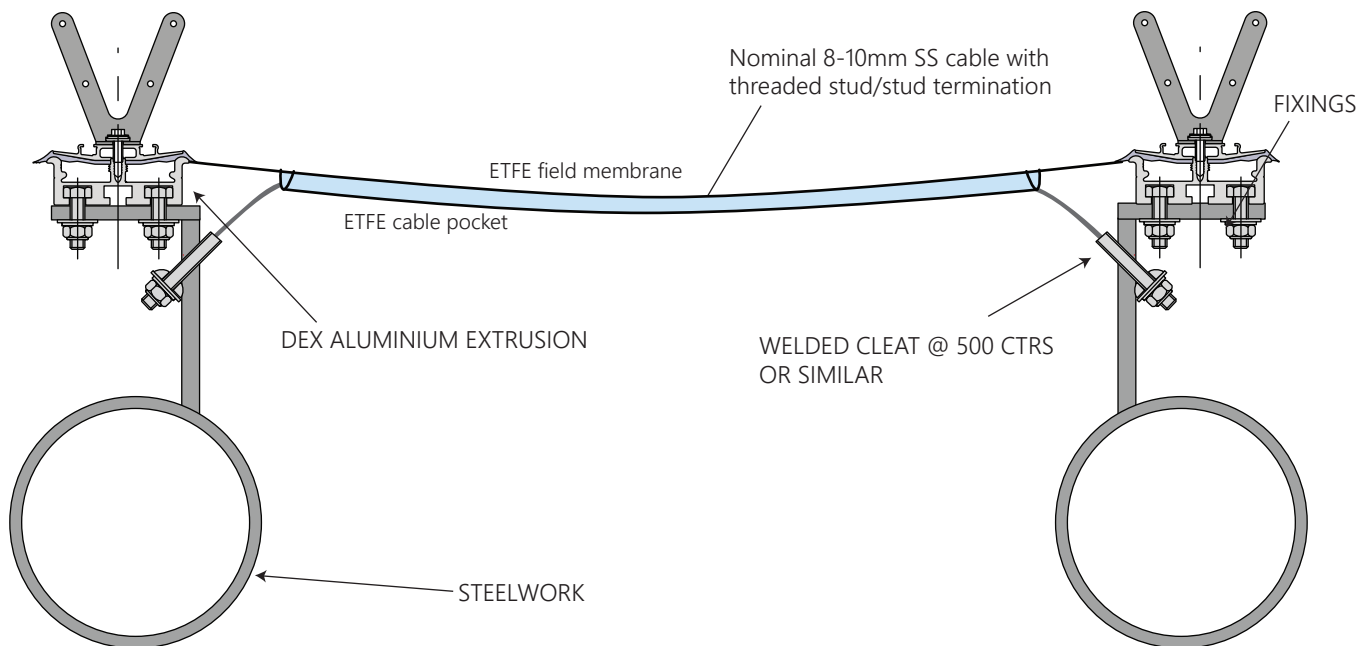


Single Layer ETFE Membrane



U Value Calculation*

Outer Membrane:

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

Inner Membrane:

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

Overall heat transfer resistance (R_T):

$$\begin{aligned} R_T &= R_{se} + R_{si} \\ &= 0.04 + 0.13 \\ &= 0.17 \text{ m}^2\text{K/W} \end{aligned}$$

$$\begin{aligned} U &= 1/R_T \\ &= 1/0.17 \\ &= 5.6 \text{ W/m}^2\text{K (rounded)} \end{aligned}$$

Overall U Value = 5.6 W/m²K

ETFE Foil - Outer Membrane
thermal resistance

ETFE Foil - Inner Membrane
thermal resistance

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

Made of a copolymer extruded into thin films, this durable material can achieve light transmission up to 95%. At 1% the weight of glass, the reduction of steel sizes and foundations required to support the system offer huge cost-saving benefits. 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