ZENON®

Rooflights GRP vs Polycarbonate

GRP

Water resistance generally good, can be improved by applying polyester film which is usual to be done on our rooflights.

Structural strength of GRP is unaffected by UV radiation. Yellowing may occur if unprotected but Polyester film delays and significantly reduces this.

Generally excellent resistance to most pollutants and chemical atmospheres, often outperforming the surrounding sheeting, fixings, etc.

Good abrasion resistance but if it occurs then appearance not greatly marred. If surface protection films are damaged then localised yellowing may occur over time and non-fragility performance may be compromised. Hazing and light discolouration is generally not particularly detrimental to light transmission.

Coefficient of expansion similar to that of the surrounding sheets or near enough not to cause problems.

GRP rooflights are a thermoset material and perform better in a fire situation, they do not have the limitations of area and spacing imposed by Part B of Building Regs. Testing to BS 476 classifications used. They do not melt or drip but may start to char at temperatures above 400°C.

GRP rooflights help to eliminate glare (BREEAM points gained) and whilst the light transmission may be lower, the quality, uniformity and spread of light is very good.

Most assemblies deliver a lower embodied Carbon content. Some products with significantly lower embodied CO2 are available. This gives quicker carbon payback contribution to Carbon neutral building if required.

GRP rooflights with a Class B non-fragility of 25 years are readily available and in some cases Class B non-fragility of 30 years plus can be stated.

POLYCARBONATE

Prolonged contact with water / condensation (e.g. trapped between seals at laps) may cause cracking and loss of strength, especially if heated by the sun.

UV radiation causes significant reduction in strength and discoloration of unprotected Polycarbonate.

More easily damaged by abrasion and more noticeable. If co-extruded protection film is damaged then this leads to discoloration and loss of strength.

Highly susceptible to attack by some chemicals, especially when under stress (including plasticisers found in Plastisol coated steel and some tapes and adhesives, including certain Butyls).

Coefficient of expansion much greater than GRP or surrounding sheets and it is suggested that pre-drilled oversized holes are needed to avoid future problems which may include stress cracking. For some products, saddle washers are required to avoid loosening of fixings through expansion and contraction.

Polycarbonate rooflights are a thermoplastic material and melt at 155°C and could drip in a fire situation maybe spreading fire. They are often tested to European methods which are not comparable to UK regulations. Under test the Polycarbonate quickly melts away from the flame and gives an unrealistic result.

Polycarbonate rooflights generally give a higher light transmission percentage but this creates glare which may not be good for workers in the area and even stock may be affected. The spread and uniformity of the light is not as good as GRP and this can cause clearly defined areas of light and shadow. Additional internal artificial lighting may be needed to compensate for this reduced diffusion. Solar gain and light transmission are directly related so buildings may overheat.

Polycarbonate, by nature, has a high embodied Carbon content and will therefore add to the Carbon footprint of a building significantly.

Few manufacturers would wish to claim Class B non-fragility for more than 15 years based on the well documented limitations of polycarbonate as a material.

Total solar transmission through PC is greater than for GRP (Infra-red and beyond).

For more information
sales@hambleside-danelaw.co.uk 01327 701920 www.hambleside-danelaw.co.uk

Hambleside Danelaw
Building Products