

PERFORMANCE GUIDANCE

ANDREW THOMSON, DESIGN AND DEVELOPMENT DIRECTOR AT ULTRAFRAME AND CHAIR OF THE GGF'S CONSERVATORY ASSOCIATION TECHNICAL COMMITTEE, OFFERS GUIDANCE ON OPTIMISING CONSERVATORY GLAZING PERFORMANCE.

For a conservatory, the choice of glazing used both in the roof and the side frames is critical to comfort levels. What do you need to know?

A FEW BASICS FIRST.

Glass is very good at trapping heat and this occurs because short wave energy from the sun easily travels through the glass. This energy then gets absorbed by objects behind the glass like walls and floors, which in turn re-radiate heat in the form of long wave energy. Glass is more opaque to long wave energy so the heat gets reflected back into the room.

The transmittance properties of glass can be varied by either changing the colour of the glass or by applying coatings to its surface to make it reflective to the energy or a combination of the two, which can create thousands of performance permutations.

- Low Iron Glass is becoming popular - it is better at letting the short wave energy through than standard glass and can further contribute to solar heating.

- One type of coating is called 'low emissivity' which helps reflect the long wave energy back into the room preventing heat escaping.

- A second type of coating is designed to reflect the short wave energy and prevent solar overheating.

- An alternative to a solar coating is a tint within the body of the material which can absorb some of the energy before it enters the room.

The more direct (perpendicular) the sun's rays are to the surface of the glass, the more of its energy goes through the glass. Typically glass in the roof will let in three times the

sun's energy compared to the vertical glass in a window.

The next difference between roof glass and windows is the way in which heat escapes. The air currents that are within and around an insulating glass unit behave differently when the glass is sloping. The change in behaviour means that sloping glass can lose heat at a greater rate than vertical glass. Because the performance changes with the angle we always refer to the U-value for a vertical pane of glass for consistency of approach.

The result is that typically 30% more heat escapes through sloped glass compared to an equivalent sized piece of glass vertically mounted.

WHAT GLAZING MATERIAL TO USE?

The choice of glazing material is influenced by 6 factors;

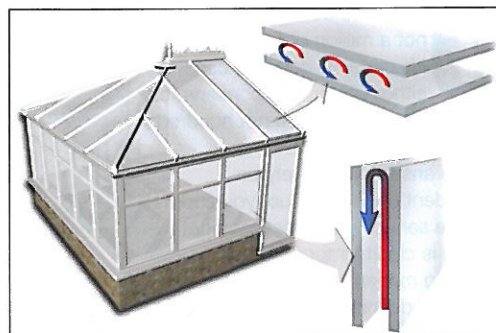
1. Regional climate
2. Orientation of the glazing to the sun
3. Budget
4. Aesthetic choice
5. Desired environment
6. Ease of maintenance

In practice - because of the general public's lack of knowledge and the variety of products available - there is a seventh factor and that is the agenda of the person who is selling the conservatory!!

WHAT IS THE BEST GLAZING MATERIAL?

Given the above variables there is no right solution and equally clear that one solution cannot be the best in every circumstance.

That said there are specifications of glass that cover a broad



range of conditions. The two main types are low emissivity and solar control.

LOW EMISSIVITY

The rate at which a room loses heat through the glass is partly determined by its emissivity. There are a range of products that give different results. Very low U-values (low emissivity) can be achieved with soft coat products but they are not so good at allowing solar gain. Hard coat products generally have slightly worse U-values but benefit from greater solar gain. The properties of each need to be weighed up when choosing the glass for a roof or vertical glazing.

SOLAR CONTROL

The solar control glass used by Ultraframe in its Conservaglass brand reflects a high proportion of the sun's heat so it makes a good all-round roof glass for the UK climate. It blocks out a significant amount of the sun's energy but allows some solar gain and has decent levels of light transmittance. Therefore, with good ventilation there will be very few times where it gets too hot if the room is predominantly south facing. For the remainder of the time, for example early morning winter, that little bit of solar gain is beneficial and allows the room to warm up quicker.

There are other solar control glass types which have a more narrow application where 80% of the sun's energy is blocked out. Where prevention of overheating is the primary concern this type of glass may be appropriate but back up heating and lighting will be necessary in winter.

SUMMARY

Understanding the client's needs, surveying the site to understand orientation and existing shading features will help a forward thinking retailer to optimise glazing performance and hence generate the maximum consumer enjoyment.

For more info contact Ultraframe on 01200 443311 or visit: www.ultraframe-conservatories.co.uk

