BALANCING THERMAL AND UV EFFICIENCY

IT'S ON THE HOUSE WITH DAKEA

BLOG
Wednesday,
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Let's do that most British of things, and talk about the weather! This year's has been particularly symptomatic of climate change – completely unpredictable. Baking hot sunshine one minute, severe storms the next.

One constant however is the need for thermal and UV efficiency, because as much as sunlight brings much wanted warmth, excessive UV rays can be damaging, and not just to a building occupier. They help to fade and degrade furniture, carpets and other fabrics. Due to their location on a pitched roof rather than an elevation/wall, roof windows can transmit light and heat for longer in a day than vertical windows. So selecting the optimum glazing and ventilation options is critical to maximising that potential.

Here are a few pointers to look out for when purchasing a roof window:

- Roof windows with two layers of low-emission coating that reflect both ultraviolet and infrared light, offering more than 80% UV protection combined with heat reflection.
- Laminated glass which features a layer of PVB (polyvinyl butyral) sandwiched between two glass panes. The PVB prevents shattering and blocks 95% of harmful UV rays, safeguarding interiors and occupants not only from weather forces, but also from accidental injuries caused by glass shards.
- Triple Glazing. The Dakea Ultima window range offers triple glazing for optimum thermal efficiency. Featuring three panes of glass with two krypton-filled cavities, offering exceptional insulation from the heat and the cold. There is also an additional sun protective layer that further helps UV protection.

The ideal UV glazing option depends on several factors. Firstly, the climate, as regions with intense sunshine will require the superior protection of laminated or triple glazing. Secondly, the application, as different spaces/rooms have different requirements. Laminated glass is ideal for living areas and bedrooms, while triple glazing might be preferred for sunrooms or art studios. And last but not least, budget. Standard glazing offers a cost-effective option, while laminated and triple glazing provide additional benefits at a slightly higher price point.

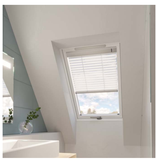
Whatever glazing option you opt for, UV and thermal efficiency can also be helped with the use of blinds, screens and shutters, all of which are a great addition to renovations or new builds, protecting rooms from the sun and providing light control.

Roof windows that prevent overheating in summer and also keep a home warm in winter typically feature two different low-e coatings containing silver layers on the panes, a laminated internal pane with Krypton gas filling, a Titanium dioxide coating for ease of cleaning, a thicker than standard 6mm external pane to resist heavy impact, and an improved noise reducing cladding system. These are particularly suitable for rooms located in a noisy neighbourhood or facing the street, as well as rooms where additional insulation is required, such as bedrooms and living rooms.

While windows can be a weak point in a building's thermal insulation, contemporary roof windows are designed to maximise insulation efficiency, reducing heat loss through these apertures, and keeping interiors cool when summer temperatures rise.

Factors to consider here are a low-emissivity (Low-E) coating. This invisible layer on the glass reflects heat radiation back outwards in summer, reducing solar heat gain and minimising reliance on air conditioning.

While building occupants can go about their daily lives blissfully unaware of anything like Part L of the Building Regulations, developers need to be very aware of the U-value requirement. This metric indicates a window's heat transfer rate, with lower U-values representing better thermal insulation. Roof windows with U-values as low as 0.99 W/m²K exceed current Building Regulations.



When selecting roof windows for thermal performance, consider these three factors:

- Climate - in regions with hot summers, prioritise low-e coating and argon gas filling.
- Building Regulations - ensure the chosen roof windows meet or exceed current thermal performance requirements.
- Energy efficiency goals - for projects targeting high energy efficiency standards, opt for triple glazing with the lowest possible U-value.

Ventilation is also of crucial importance in the summer. Contemporary roof windows feature built-in ventilation valves which allow for continuous natural air flow without having to leave windows open, which is useful at particularly cold and hot times of the year. They also give the additional benefit of increased ventilation at night for high-humidity rooms such as bathrooms, when it might not be a good idea to leave a window open.

For the ultimate convenience, roof windows with a retrofit opening motor option and remote control functionality allow for easy ventilation control from a distance - perfect for those hard-to-reach installations.

The ideal ventilation option depends on the specific needs of the project. Consider the room's size and ventilation needs, as larger rooms might benefit from a wider opening window or continuous ventilation flaps. Also factor in the position and orientation of the window in case it faces the prevailing wind.

Thermal efficiency and protection from harmful UV rays are important considerations for any project involving roof windows. For more help and guidance, please speak to our expert Dakea team.

KEY TAKE OUTS

- Due to their location on a pitched roof rather than an elevation/wall, roof windows can transmit light and heat for longer in a day than vertical windows.
- Roof windows with two layers of low-emission coating that reflect both ultraviolet and infrared light, offering more than 80% UV protection combined with heat reflection.
- The ideal UV glazing option depends on three factors – climate, application and budget!
- Low-emissivity coatings reflect heat radiation back outwards in summer, reducing solar heat gain and minimising reliance on air conditioning.

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