



QUESTIONS TO ASK

When considering a performance glass



SANS 10400 XA Nov 2021 edition has resulted in many architects specifying Low E glass to meet their energy calculations without opting to perform a building envelope rational design.

The most important question that need to be posed to the home owner should be as follows:

What performance factors are you expecting from your glass?

Do you want safety glass or security glass?



Laminated safety glass has both **security** and **safety** glass properties, as well as some **acoustic** benefits compared to a toughened safety glass which only has safety glass feature for human impact. SANS 10400 Part N determines where safety glass is required within a building.

Do you want to eliminate noise?

By using a **sound dampening vinyl** (0.5mm or 0.76mm Acoustic vinyl interlayers) you will achieve an additional **2 to 3db** depending on the glass make up. This has more acoustic reduction than a double glazed unit. Ideally you would want to specify **two different thicknesses** in the make up as the noise will resonate differently through each panel.

Noise is reflected in weighted average RW then followed by the noise type rating either C or CTR essentially giving a RW(C,CTR) db rating after the glass type. There are two types of noise frequencies namely; **Medium to High Frequency (C)** voices and high pitched sound and **Low Frequency (CTR)**, for example truck noise and sounds with a high bass.

Example 8.76mm Acoustic Laminate has a rating of **RW 37(0,-3)db**:

- **RW = 37** weighted average
- **C = 0** no sound loss for medium to high frequency
- **CTR = -3 db** loss for low frequency noise

Therefore this glass will not lose performance for medium to high frequency, however under low frequency it will only achieve **34db rating**.

Do you want to eliminate visibility?

Highly reflective solar glass is light dependent and hence during the day, the mirror effect would be visible from the outside. However at night when the lights are on inside, the mirror effect will then be on the inside and anyone looking in from out, will be able to see through the glass panel.

A translucent glass will eliminate any direct visuals through the glass panel allowing only silhouette/shadow effects to be visible. This can be combined with colour vinyl to add to the aesthetic appearance.





QUESTIONS TO ASK

When considering a performance glass

Continued...



Do you want to retain heat?

If you want to retain the heat inside the building, then **Low E** or **double glazing** is the way to go as these products have a **lower u-value** than normal annealed glass or encapsulated soft coated performance glass.

The low E coating must be on **surface 2** (facing inside the house) for single glazed and **surface 3** (inner glass but facing outside) for double glazed units.

With the coating on **surface 3** of the IG Unit, it will allow **more Solar Heat** into the building compared to when the coating is on **surface 2** of an IG Unit.

This scenario is really applicable to properties where they are south facing with little to no direct sunlight. Alternate heating will need to be generated within the building so that this heat can be re-radiated back into the building.



Do you want to eliminate heat?

If your goal is to eliminate heat coming into the building, a **solar control glass** without a **low E** coating should be recommended as this glass has a lower Solar Heat Gain compared to clear float glass.

The solar coating or body tint of the glass will absorb and reflect direct solar heat, thus reducing the solar heat transfer through the pane of glass. Heat eliminating glass is generally a tinted glass so that should be taken into account too.

In a double-glazed unit, the tinted or solar control glass should always be glazed to **outside** of the unit. If a solar control glass is laminated with a **Low E glass**, the Low E coating must be glazed to the **inside** of the building.

In double glazed units, the solar control Low E glass with a Low E coating should be glazed to **surface 2** of the glass will retain more heat in the building which means it could be unfarmattable in warmer months.



Any Low E coating needs air to perform, hence when the coating is encapsulated to the vinyl during the lamination process, it will lose its emissivity and perform very similar in u-value to a clear float glass. This is also the reason why SANS 10400 XA has excluded the performance values in high condensation areas, as when condensation is on the glass, the coating assumes the emissivity of water and will therefore not reradiate heat back into the building.

Low E also requires a **very specialized cleaning routine**, and when the surface of Low E is damaged, the glass tends to discolour or looking like the glass is rusting.