Acoustics and Sound Attenuation Units

We're often asked to provide glass-based solutions to reduce external noise intrusion for both domestic and commercial installations. It's important to note that whilst we are able to offer a wide range of glazing options from basic to very enhanced levels of noise control, it's key that the installation as a whole is taken into account.

Noise has a habit of getting in through the smallest of gaps and so opening sashes, gaskets, etc. All need to be in top condition, and of course physical voids in the frame be it for ventilation or just through a poor fit will annul many of the gains made in the glass unit.

Quantifying the level of audible reduction of glass. There are 3 key measures:

Rw	This most common measure takes and weighs a 'basket' of frequencies and incorporates a correction for the human ear. Unless otherwise stated or requested, we will assume all enquiries are in this measure, as will be our supplied data.
Ctr	This specific measure (formerly **Rtra**) is geared towards the sound spectrum that most typifies road traffic noise, hence useful for brownfield sites, etc.
C	This measure is simple average across a range of frequencies typical to normal living, TV, conversation, children at play, etc.

All three measures are simply related and the usual terminology is to quote the **Rw** followed by a reduction for the **C** and **Ctr** values, the number being adjusted to correspond to the spectrum of sound in each case.

Other important points to note are:

- A unit incorporating two different glass thicknesses will perform better acoustically than 2x4mm, 2x6mm, etc.
- As the decibel scale is logarithmic, an increase for example in the Rw of 10db, will equate to a 50% reduction in the audible level of sound. Similarly, a difference of 1 decibel is not discernible, 3 decibels is on the limit of human perception, whereas 5 decibels is clearly noticeable.
- Whilst the cavity is generally irrelevant to the Rw regarding human perception, it does of course affect U-Value and so needs to be factored in for this reason.
- As acoustics is rarely a standalone issue, we'll always try and find the best all round solution, taking into account the required sound reduction, available unit thickness, cost, lead time, etc. The table below gives some examples of how differing constructions perform in the measures above. Note the relative performance of single and especially triple glazing, which is often assumed incorrectly to help reduce sound.

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Technical Guides

Acoustic control units, typical examples:

Construction	Rw	C	Ctr	Notes:
4mm float // 4mm float	31	29	26	Standard unit.
6mm float // 6mm float	31	30	27	Heavier 6mm version.
6.8mm laminate // 4mm float	33	32	28	Addition of standard 6.8mm laminate.
6.8mm acoustic lam // 4mm float	36	34	30	Addition of acoustic 6.8mm laminate.
6.8mm acoustic lam // 6mm float	40	38	34	Acoustic laminate and heavier glass.
10mm float // 4mm float	38	36	32	Non-laminate improved acoustic values.
10mm float // 6mm float	40	38	35	Heavy and different thicknesses.
10mm float // 8.8mm laminate	40	39	36	Heavy and laminate.
10 mm float // 8.8mm acoustic lam	42	41	38	Heavy and acoustic laminate.
12.8mm ac lam // 8.8mm ac lam	48	45	41	Heavy specialist laminates.
4mm float single glazed	29	27	26	Similar performance as 4mm DGU.
4mm float triple glazed	32	31	27	Similar performance to single/4mm DGU.