Acoustic control units - General Information

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.

When quantifying the level of audible reduction a material such as glass gives there are 3 key measures -

Rw	This most common measure takes and weights 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 our data be supplied
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 the spectrum of sound in each case.

Other important points to note are -

Whilst the cavity is generally irrelevant to the Rw, it does of course affect U-Value and so needs to be factored in for this reason
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 decibels is not discernible, 3 decibels is on the limit of human perception, whereas 5 decibels is clearly noticeable

As acoustics is rarely a stand alone 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.

Acoustic control units - Typical Examples

Construction	Rw	C	Ctr	Notes
4mm Float / / 4mm Float	29	28	25	Standard unit
6mm Float / / 6mm Float	31	30	27	Heavier 6mm version
6mm Float / / 4mm Float	32	30	28	Differing glass thickness
6.4 Lam / / 4mm Float	35	31	28	Addition of standard laminate
6.8 Acoustic Lami / / 6mm Float	40	38	34	Acoustic laminate
10 mm Float / / 6.4 Lami	40	39	36	Simple stocked and versatile products
8 mm Float / / 6.8 Acoustic Lam	42	39	35	Heavy and different thickness
10mm Float / / 8.8 Acoustic Lam	46	44	40	Heavy acoustic
12.8 Acoustic Lam / / 8.8 Acoustic Lam	48	46	41	Heavy specialist laminates
4mm Float Single Glazed	29	27	26	Same performance as 4mm DGU
4mm Float Triple Glazed	31	26	30	Similar to single or DGU

These constructions are recommended as they offer good reductions using readily available products compatible with low E and other required properties