

# How are acoustic absorption and the attenuation of sound measured?

Clayton Glass can provide glass-based solutions to reduce external noise intrusion for domestic and commercial installations. Whilst we can offer a wide range of glazing options from basic to enhanced levels of noise control, the whole installation must be assessed to determine performance levels.

Noise can travel through small gaps, so opening sashes, gaskets, etc., must all be in top condition. Any physical void in the frame, whether that be due to poor fit or ventilation, will counteract much of the noise reduction made in the glass unit.

## How to quantify the level of audible reduction in glass

When assessing the noise reduction of glass, there are 3 key measures to consider.

<b>Rw</b>	Rw stands for The Weighted Sound Reduction Index. It is a number used to rate the effectiveness of a soundproofing system or material. It is the most common measure, and it weighs a 'basket' of frequencies while incorporating human ear correction. This is our default measure for all enquiries unless stated otherwise.
<b>Ctr</b>	Ctr is an adjustment factor that accounts for low-frequency noise such as road traffic or music.
<b>C</b>	This measure provides a simple average across a range of frequencies typical to everyday living, such as TV, talking and children playing.

When assessing the level of audible sound reduction in glass, the Rw number is stated, followed by a reduction figure for the Ctr and C values, giving a spectrum of sound in each place.

## Things to consider

- A unit incorporating two different glass thicknesses will perform better acoustically.
- The decibel scale is logarithmic, so an increase in the Rw of 10db, will equate to a 50% reduction in the audible level of sound.
- The difference of 1 decibel is not discernible while 3 decibels is on the limit of human perception. A difference of 5 decibels is noticeable.
- The cavity is generally irrelevant to the Rw regarding human perception but does affect U-Value so, must be considered.

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.