

Technical Datasheet

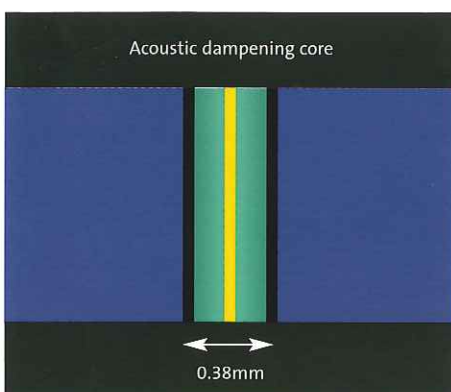
Frequently asked questions about acoustic laminated safety glass

What is acoustic laminated safety glass?

Acoustic glass consists of a minimum of two sheets of glass bonded together by at least one interlayer, known as a PVB (Polyvinyl Butyral), providing protection against noise sources whilst maintaining the safety and security properties of standard laminated glass.

How does acoustic laminated glass work?

The special PVB interlayer used in *SGG STADIP SILENCE* between the two panes of glass absorbs sound, helping to keep both unwanted noise out or to keep noise in.



Where can acoustic glass be used?

Acoustic glass can be used in any application where there is a need to reduce noise pollution, both internally and externally.

What are the benefits of acoustic glass?

SGG STADIP SILENCE not only provides optimum protection against intrusive noise but also has the added benefits of:

- Optimum optical quality
- A thinner, lighter glass with the equivalent acoustic performance
- All the safety and security benefits of standard laminated glass
- Filters 99% UV light
- Can be combined with many other high performance products from the Saint-Gobain range providing greater flexibility and helping you realise your glazing requirements.

Will using *SGG STADIP SILENCE* eliminate all noise?

No, *SGG STADIP SILENCE* will not cut out all noise, but the effects of noise will be considerably reduced. For a demonstration on the effectiveness of the glass please visit www.saint-gobain-glass.com and select acoustic insulation under functions.

Will my choice of frame affect the performance of the glass?

Yes, the glass and frame together determine the acoustic insulating performance of the entire window and therefore the performance of the window cannot be determined by the glass alone. If *SGG STADIP SILENCE* is used with poor quality frames, sound can penetrate through any weakness, reducing the effectiveness of the sound insulation.

SGG STADIP SILENCE, acoustic laminated glass is the ideal solution for enhanced insulation against both airborne and impact noise. It provides exceptional levels of sound insulation whilst maintaining the safety and security properties of laminated glass.

How effective is *SGG STADIP SILENCE*?

The benefit gained by using *SGG STADIP SILENCE* will vary according to the glass configuration you use, its suitability to the location and noise source you are trying to reduce.

However, simply changing your glazing from a standard double glazed unit 4-16-4 to 4-16-6.4 *SGG STADIP SILENCE* will reduce noise by as much as 25%.

How do I know what thickness of glass to specify?

The thickness of glass that you need to specify will vary according to many factors, including, the application the glass is to be used in, the location and the performance rating you need to achieve. However for most domestic applications 6.4mm *SGG STADIP SILENCE* in a double glazed unit will provide sufficient acoustic protection. For commercial applications if you are in any doubt then it is best to consult an acoustic consultant for specialist advice.

Where can I obtain certification for the acoustic glass performance?

Saint-Gobain Glass have independently verified acoustic certification for a large number of single & double glazing configurations, for more information please contact the marketing department.

For technical/specialist information please turn over.

Key Acoustic Terminology

Ambient Noise

Ambient noise encompasses all sound present in a given environment, usually including sounds from many sources both near and far.

C & C_{tr}

C & C_{tr} are the spectrum adaptation terms which are the values added to R_w to take into account the characteristics of particular sounds:

C - Medium and high frequency noise sources:

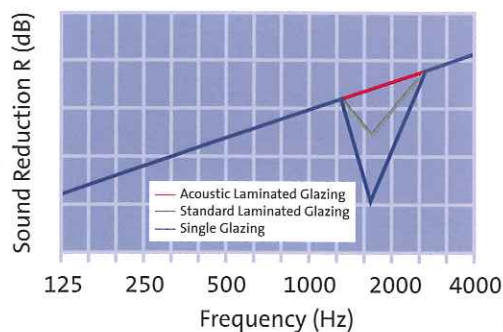
- TV
- Music
- Loud conversations
- Aircraft a short distance away
- Motorway traffic

C_{tr} - Medium and low frequency noises:

- Urban traffic noise
- Aircraft a long distance away

Critical Frequency

Each glass type and thickness has a critical frequency at which its ability to absorb sound is reduced. At this frequency, or coincidence resonance, it vibrates more easily and transmits noise more readily. In many materials which are relatively thin such as glass, the coincidence frequencies will be somewhere in the 500Hz - 4KHz range. This is where hearing sensitivity is best and is also in the range where speech occurs. For example for 4mm monolithic glass, the critical frequency is 3,000Hz. This effect upon the sound insulation properties of the glass can be as much as 10 to 15dB.



dB

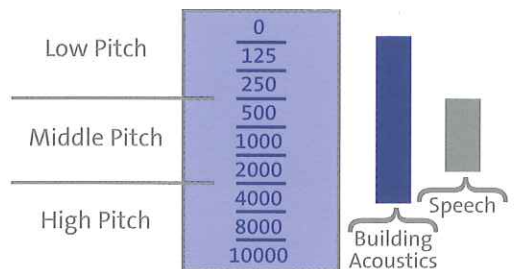
dB is an abbreviation of decibel, the unit of measurement of sound, measured against a logarithmic scale. Decibels can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation.

dB (A)

'A' weighted decibels dB (A) are "weighted" for the response of the human ear.

Frequency

The number of vibrations of sound waves emitted per second is known as the frequency and is expressed in Hertz. The human ear is sensitive to sounds in the frequency range of 16Hz to 20,000Hz. Architectural acoustics generally concerns itself with the 50 to 5,000Hz range, which is divided into bands of frequencies or octaves. At each octave the frequency doubles. For more detailed analysis, 1/3 octaves may be used.



Octave Band

The spectrum of sound is measured in bands of frequencies, an octave band is the band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.

Pink Noise

Expressed in dB(A), this is an assessment of the sound insulating properties of a building material over specified standard frequencies, which represent general activity noise, when equal levels of power are applied at each frequency.

R_a

R_a is the abbreviation for the sound reduction index when the spectrum adaptation term C is applied to the single number weighted sound reduction index (R_w) using pink noise as a sound source.

R_{a, tr}

R_{a, tr} is the abbreviation for the sound reduction index when the spectrum adaptation term C_{tr} is applied to the single number weighted sound reduction index (R_w) using traffic noise as a sound source.

R_w

R_w is a single figure rating for the sound insulation of building elements. It includes a weighting for the human ear and measures actual sound transmittance.


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GLASS

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