Technical clarification – Acoustic insulation

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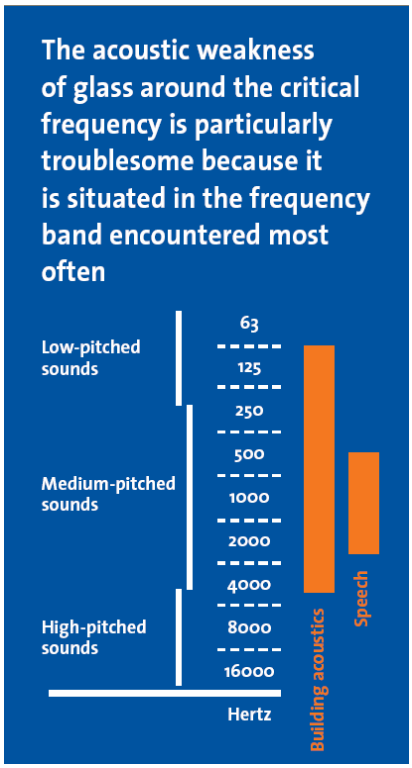

The critical frequency causes an unwanted acoustic peak

The law of mass states that the thicker the glass, the weaker the noise transmitted. A second law states that transmitted noise decreases as we pass from low to higher frequencies.

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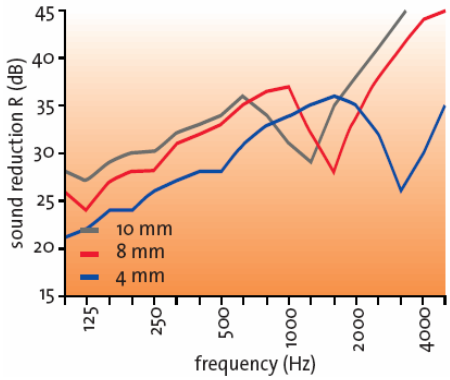
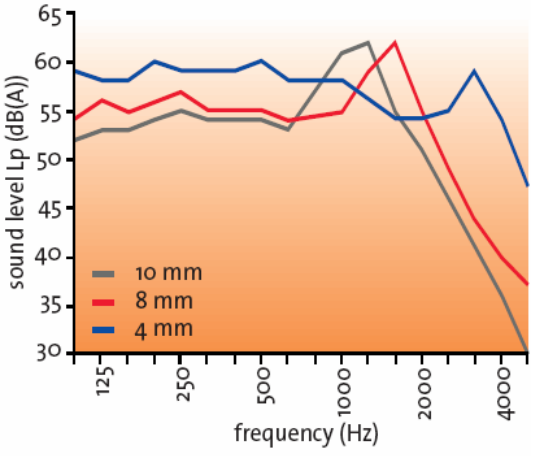
This is true up to a certain level, called the critical frequency. At this point everything is reversed. It is as if the glass suddenly develops a hole through which noise can pass freely.

① The critical frequency: a hole in the insulation



② This hole is represented by an acoustic peak



Conventional products are no solution

With single glazing, increasing the thickness doesn't help. The acoustic peak just moves to lower frequencies. Laminated glazing with an ordinary PvB interlayer is also unable to significantly reduce this peak.

With symmetric double glazing the effect is even worse. With two panes of the same thickness the acoustic peaks are superimposed and serve to strengthen each other. In addition a mass-spring-mass resonance point appears at low frequencies.

With asymmetric double glazing the strong peak is replaced by two weaker points. The resonance point decreases and

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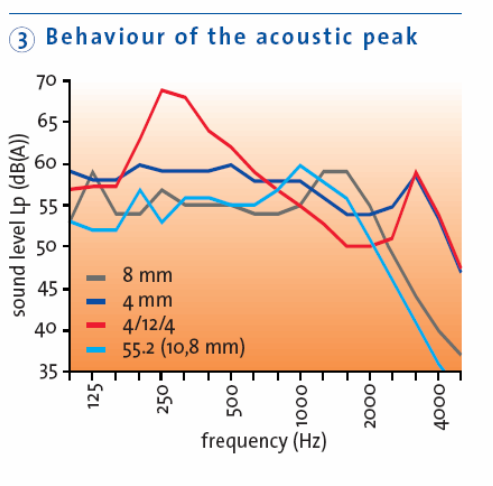
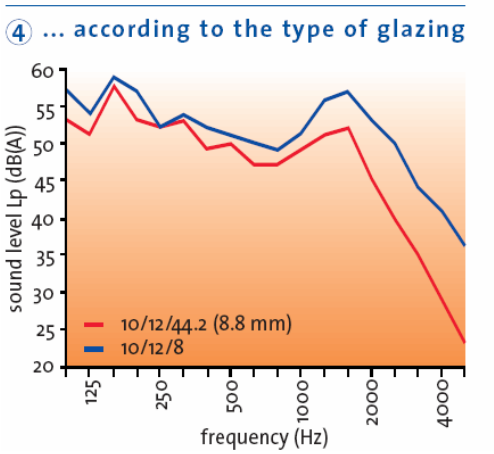
moves toward the lower frequencies. Nevertheless, the problem remains.





For every part of a building there is a critical sound frequency which causes spontaneous vibrations. Insulation against noise with this frequency is difficult to achieve. The „holes“ in the insulation are added in both panes of a double glazed unit at this critical frequency. Asymmetric pane thicknesses may reduce this effect but they do not solve it.

CLIMAPLUS N SILENCE closes the resonance hole. The laminated glass with its acoustic interlayer acts like a dampening core between the two panes of glass. It prevents vibration, eliminating the problem of the critical frequency and thus the acoustic peaks at higher frequencies. The patented and unique product offers exceptional levels of acoustic comfort.