



# SeasonMaster

## DOUBLE GLAZING LTD

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## Advice on Secondary Glazing and Sound Reduction

The use of secondary glazing to reduce sound coming into or out of a property is extremely effective. To test the secondary glazing a three panel slider was sent to the Building Research Establishment in Watford. A high Density block wall was built which divided a room in half. A standard window from a builder's merchant was installed in an aperture left in the wall with secondary glazing installed behind. A noise is played at different frequencies in one half of the room and in the other half a receiver measured the sound coming into the room.

Glass is a hard thin material and therefore vibrates when soundwaves hit the glass which in turn vibrates like a loud speaker transmitting some of the sound into the room. By installing secondary glazing behind the existing window this then adds another barrier for the sound to get through and the air gap left between the internal and external panes of glass create a cushion of air that further helps to reduce the sound.

The test produced a set of results that can be used as a guide only to what could be achieved. In most situations that secondary glazing is fitted it will achieve an excellent reduction in sound levels however there are many factors which can alter the result. The test was carried out using high density wall blocks which reduces the sound through the wall very well. When the test sound is played in one side of the room the sound reduction figure is what's traveling through the secondary and not the wall. All properties are built from different materials and whilst most perform well in reducing sound some by their very design do not. Windows are generally the worst performing part of any building letting in draughts and sound.

### Can we guarantee the reduction in sound you will achieve in the building?

The simple answer to this question is no. Whilst the secondary will make a huge difference, sound travels through every part of the building

### Where's the sound coming from?

The majority of the sound comes through the window however sound travels through walls, floors, air vents, the roof and so on. Most houses will have air vents that ventilate the area under the floor sound travels up through the floor boards. Extractor fans and air vents allow sound through. Walls and floors vibrate when lorry's, buses and cars pass by. The condition of the external window makes a difference. Roof tiles have gaps between every tile allowing sound into bedrooms

### How can secondary help if sound is coming into the building from everywhere?

The sound coming through the areas mentioned above is very small due to the density of building materials but the sound that does make it through detracts from what the secondary glazing is achieving. Therefore if the secondary is achieving a sound reduction of 75% (using acoustic laminated glass) for example, 10% may be entering the building through other areas, this still achieves a substantial reduction in noise of 65%. Whilst not tested the other types of units we offer such as hinged units and lift outs have less seals for the sound to pass through, use the same glass and have the same design gaps so they should perform close to or equivalent to the two and three panel sliders.

### What glass should I use?

The glass type used is the most important part of the secondary glazing. In the test a three panel slider installed behind a timber window with a 100mm air gap achieved the following results. **Rw** is the average sound reduction achieved over a range of frequencies from high to low sounds

4mm Glass	39Rw	6.4 Laminated Glass	40Rw
6mm Glass	39Rw	6.4 Acoustic Glass	45Rw

*This test window was a two panel slider*

### Should I leave a gap between the secondary and the existing window?

The test was carried out using a 100mm air gap between the two panes of glass. The sound reduction improves the further away from the existing window the secondary is installed up to a distance of 300mm