



A Basic Guide to Sound Insulation Testing

What is Sound Insulation Testing?

Sound Insulation Testing is a test devised to check elements of a building for their sound insulation performance in accordance with building regulations Part E.

When a new construction or the conversion of an existing construction results in two adjoining dwellings being separated by party elements, it is a Building Regulations requirement for these elements to be tested.

Which elements require testing?

Building Regulations stipulate that sound insulation testing should take place on all party elements (party walls/ floors).

E.g. adjoining walls/ floors between 2 flats.

Test Procedures

In order to have analysable results, two measurements are needed in order to correct the results for receiver room characteristics. E.g. Background noise.

Airborne Testing

In order to rate the airborne sound insulation of a party element, speakers are used to generate white noise, usually at levels of around 100 decibels, in the source room. Then, using a moving microphone technique, the average sound pressure level is measured the other side of the element in question.

The same procedure is used to measure the average sound pressure level in the receiver room.

Impact Testing

Impact tests require a tapping machine to create impact sound directly on the floor construction in the source room. Measurements are taken in the receiver room, in third octave bands from 100Hz to 3150Hz. The impact sound pressure level is calculated, giving the floor an impact sound insulation rating.

Measurements are taken with the tapping machine in at least four different position and at least six measurements are taken.

Testing Requirements to be Met

In order to meet resistance to the passage of sound standards, the flats must meet values set in Building Regulations Part E. This document presents the following criteria to be met:

	Test Element	Airborne Sound Insulation DnT,W + Ctr dB (Minimum Values)	Impact Sound Insulation L'nT,W dB (Maximum Values)
New Build	Wall	45	-
	Floor	45	62
Conversion	Wall	43	-
	Floor	43	64

Impact tests are designed to test an element's performance against footfall, therefore this test is not necessary for a wall

Airborne Values (DnT,W + Ctr dB) represent the weighted, standardised level difference between a source room and receiver room (i.e. how much quieter the receiver room is) (DnT,W) with an added correction term (Ctr), which characterises the level difference with respect to urban traffic noise.

As the airborne result is in terms of a level difference, the higher it is, the higher the acoustic attenuation and therefore the better the performance.

Approved Document E 2003 states that in a new build, the party element must achieve an Airborne Sound Insulation result of at least 45dB and a conversion must achieve a result of at least 43dB.

Impact Values (L'nT,W) are given as the weighted, standardised impact sound pressure level i.e. how much impact noise can be heard in the receiver room.

As this result is given in terms of level, the higher it is, the less of an effect the party element is having, and the worse the sound insulation performance.

Approved Document E 2003 states that a new build must have an impact sound insulation result of no more than 62dB, while the result for a conversion must be no more than 64dB.

Is my site ready for testing?

Sound insulation testing takes place at a "pre completion" stage. This means that your development needs to be almost complete with doors in place, windows and trickle vents fitted, as well as power on site. During the sound insulation tests, we will require a quiet site so as not to affect the test results.

What if a test fails?

We understand that this possibility is a concern to our clients and therefore offer free advice on remedial measures in case of failed tests and heavily discounted retest fees.

Please note: The content of this article is for information purposes only. Please contact UK Building Compliance for further advice.

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