



Castle Group Ltd

What you need to know about Sound Insulation Testing

**The Secrets of Acoustics Testing for
Renovated properties**

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Sound Insulation Testing; Part E

All new or converted property is now required to comply with regulations as set out in PART E of the Building Regulations. These regulations require a property to conform to minimum standards for sound insulation. Failure to comply means that a Building Control Officer will NOT sign off a property, rendering it unfit for sale.

For new properties, this specification is normally achieved with the use of prescribed building methods or 'Robust Details', where an architect will design in standard construction methods with approved materials and processes. Assuming these are all followed correctly, then a building will pass without further testing.

Converting a property into flats is an entirely different story as you are left with a pre-existing building, often of unknown construction methods. In this case, the property must be subjected to a sound insulation test, which has to be carried out by an accredited organisation. Only with a PASS certificate, can a project be signed off by a Building Control Officer so it is ready for sale.

Get it right from the start!

It is important to seek advice before any building works take place as this can guide any works ensuring that a PASS is far more likely. It is ALWAYS more expensive to fix a problem after completion than it is to design the project right in the first place! You will need to consider:

- What is the existing construction?
- What materials are intended for the conversion?
- Are there any special circumstances or requirements for planning?
- Do you have an acoustician on hand for advice?

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. It is also important that the site is quiet for the actual test so as not to adversely affect the results.

Remember to ensure that you have instigated the measures suggested by your acoustics expert and followed any advice about the preparation for the test as this can make the whole process run more smoothly.

- Arrange the test date well in advance to allow for diary scheduling and to give time to make your final preparations.
- Check that your site can be ready and cleared before the testing.
- Ensure all the checkpoints are covered regarding the stage of completion.
- Make sure power is available and that windows and doors can be shut.

When do I carry out the Sound Insulation Tests?

Unlike the Air Leakage Tests, Sound Insulation Testing should be carried out at the earliest possible point just in case there are any problems. Ideally this should be done before bathrooms and kitchens are installed if possible. This list of minimum requirements might help.

- Ensure all doors and any seals are fully fitted and working correctly.
- Ensure all windows and seals are fully fitted and working correctly.

- Ensure all electric fittings are fitted and working.
- Ensure 240Volt mains power is available on site in all rooms.
- Ensure all gaps are sealed in walls and floors (see diagram).
- Ensure all walls and ceilings have been plastered.
- Ensure no holes in floor or ceilings, seal gaps with mastic or silicon.
- Ensure we have access to all rooms on all levels.
- Ensure all properties are vacated during the duration of test.

What if the property doesn't pass?

If a property doesn't pass a sound insulation test, then remedial measures will be required. You will need advice from your acoustics expert and this should be followed to the letter. You will then require a re-test in full so that you can get hold of that all-important certificate

Who can do the testing?

Sound Insulation tests must be carried out by an accredited body or organisation. There are 2 accrediting authorities, both of whom are allowed by Building Control officers. These are the ANC (Association of Noise Consultants) and UKAS (United Kingdom Accreditation Service).

These are the only 2 organisations that can accredit a consultant to carry out these tests and either will do although you will find a slight difference in the companies who have either one.

The ANC is a membership organisation that only accepts members who meet very strict criteria of acoustic competence. This usually means these organisations are purely acoustic consultancy firms who might specialise in many areas of sound monitoring and control. If you are looking for design advice, it may well be worth checking these companies out first.

UKAS is a non-governmental organisation purely engaged in accreditation for anything from time measurement to ship surveying. Companies who have UKAS accreditation often only specialise in sound insulation testing, which can mean a lower price.

ANC Contact Details

- <http://www.association-of-noise-consultants.co.uk>

UKAS Contact Details

- <http://www.ukas.org>

What are the actual Building Regulations requirements?

Approved Document E (2003) of the Building Regulations stipulates that sound insulation testing should take place in all residential developments that involve party elements (walls and/or floors). This applies to all new-build or converted residential developments in the UK, where a minimum sample of 10% of properties require sound insulation testing

- Sound testing is part of the **Approved Document E** Guidance document with in current Building Regulations.
- There are 2 methods of achieving compliance with Approved Document E

Pre-completion Sound Testing

New Builds and Property Conversions

- Under this method, you are required to carry out sound insulation work in respect of the building in the areas defined within the Document. Once the works have been completed then you are required to have a Sound Test and pass the Sound Test.
- If you fail the test then you will have to remedy the problem and carry out further tests to prove the remedial actions have been successful.

Robust Details - New builds only

- Under this method, you are required to carry out sound insulation work to a predefined methodology using specific types of products as set out in the Robust Detail manual.
- Once works have been completed as required, you should not require any testing.
- Contact Robust Details at www.robustdetails.com

Do I need Sound Insulation Tests?

Under Approved Guidance Document E, if you have or intend to do any of the following, then you will probably need to carry out Sound Insulation Tests for the development. The numbers of tests that will be required will depend on the number and configuration of the dwellings involved.

- Build a New Build development of 2 or more dwellings / Flats
- Converting a former single dwelling into Flats
- Building a Nursing Home or Rooms for Residential Use ie Hotel or Hostel
- Not building under Robust Details.

Under Approved Guidance Document E, if you have Registered and built New Build Dwellings under Robust Details, then you should not need to carry out testing as long as you have followed their procedures.

What is Sound Insulation Testing?

Sound Insulation testing is a method of measuring and quantifying the amount of noise reduction achieved between different attached dwellings. In Approved Document Part E of the Building Regulations, there are limits set out for both Airborne and Impact Tests that a separating structure ie Wall or Floor needs to achieve for compliance.

- New Build Dwellings have to achieve a slightly better performance as there is a recognition that conversions are more difficult to manage in terms of performance of older structures that can't be changed.
- The current limits came into force on July 1st 2003 are set out as below.

Table 1a: Dwelling-houses and flats - performance standards for separating walls, separating floors, and stairs that have a separating function.

| | Airborne sound insulation sound insulation $D_{st,w} + C_T$ dB (Minimum values) | Impact sound insulation $L'_{st,w}$ dB (Maximum values) |
|---|--|--|
| Purpose built dwelling-houses and flats | | |
| Walls | 45 | - |
| Floors and stairs | 45 | 62 |
| Dwelling-houses and flats formed by material change of use | | |
| Walls | 43 | - |
| Floors and stairs | 43 | 64 |

- For Dwellings such as Hotels, Hostels and Bedsits the Regulations are slightly different

Table 1b: Rooms for residential purposes - performance standards for separating walls, separating floors, and stairs that have a separating function.

| | Airborne sound insulation sound insulation $D_{st,w} + C_T$ dB (Minimum values) | Impact sound insulation $L'_{st,w}$ dB (Maximum values) |
|--|--|--|
| Purpose built rooms for residential purposes | | |
| Walls | 43 | - |
| Floors and stairs | 45 | 62 |
| Rooms for residential purposes formed by material change of use | | |
| Walls | 43 | - |
| Floors and stairs | 43 | 64 |

*****These Tables are taken directly from Approved Document E*****

The full pdf of Document E can be downloaded from this link:
www.planningportal.gov.uk/uploads/br/BR_PDF_ADE_2003.pdf

How Castle Can Help?

Castle Consultants can provide sound insulation testing to ANC or UKAS accreditation and we are available to provide design consultancy, right through to remedial work specifications.

- Design advice and pre-construction support
- On-site advice. We can answer any queries during the project all aimed and helping to achieve a pass the first time around
- Sound Insulation testing
- Air-tightness testing at the same time if required!
- Remedial work specifications and support
- Re-testing

Call us now on 01723 584250, email sales@castlegroup.co.uk or visit www.castlegroup.co.uk so we can start to help!