

Sound Insulation between Premises

For conversions with pub/bar/restaurant below Residential

- Adoption of Scottish sound insulation criteria as a minimum standard for residential above or adjacent to pub/restaurant etc.

Part E - Building Regulation Requirements

Approved Document E (England and Wales) provides guidance on the resistance to the passage of sound in domestic buildings, in schools and flats. This guidance applies to new buildings, to alterations to pre-existing premises and to buildings being converted to flats.

The document provides guidance on sound proofing, including the transmission of sounds between walls, ceilings, windows and floors. It covers unwanted sound travel within different areas of a building, including common areas within schools and buildings containing flats, and in-between connecting buildings.

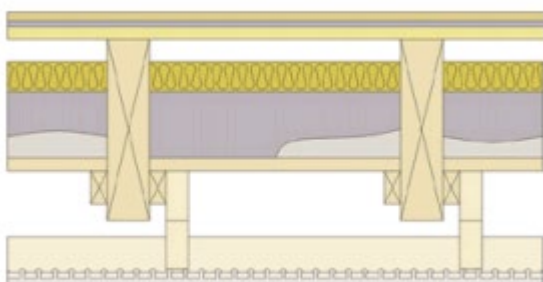
Scottish values offer a higher standard and may be applied. Details can be found at <https://www2.gov.scot/resource/doc/217736/0099123.pdf>

Table 1 - Building Regulations Requirements

	Airborne Sound Insulation (DnT,w+Ctr dB minimum values)		Impact Sound Insulation (L'nT,w dB maximum values)	
New Build	England	Scotland	England	Scotland
Walls	45	56		
Floors & Stairs	45	56	62	53
Conversions				
Walls	43	53		
Floors & Stairs	43	53	64	58

Remedial sound insulation (floor/ceiling) may be achieved with:

Lift existing floor and install 70mm granular chips with mineral wool layer. Soft floor covering 8mm thick bonded to new 22mm chipboard layer prior to laminate being installed.



Condition

NSD10 - ACOUSTIC INSULATION FOR FLAT OVER COMMERCIAL

No part of the development hereby permitted shall be brought into use until full details of a sound insulation scheme has been submitted to and approved, in writing by the Local Planning Authority. The scheme shall adequately demonstrate a system of sound insulation between commercial and residential uses, that is designed to achieve an airborne sound insulation value of no less than:

- Airborne Sound Insulation 53 DnT,w+Ctr dB
- Impact Sound Insulation 64 L'nT,w dB

The approved scheme shall then be implemented prior to the permission being brought into use, to the written satisfaction of the Local Planning Authority, and maintained in use for the life of the development.

What's the difference between Rw and DnT,w (DnT,w+Ctr)?

DnT,w is used in reference to on-site sound insulation and it describes the in-situ or onsite airborne sound insulating power of a building element. Because it's on-site, DnT,w accounts for all physical channels of sound transmission, including through a partition separating two spaces and any flanking paths around it, for example, ventilation, external walls and ceiling voids.

DnT,w+Ctr is corrected for frequencies associated with traffic. Applicable where traffic is the dominating noise feature.

Rw, on the other hand, is the weighted sound reduction index in dB (decibels) and it describes the airborne sound insulating power of a building element. It is a laboratory-measured value as defined in ISO717 Part 1. It can apply to walls, ceiling/ floors, ceiling/roofs, doors, or windows. The higher the number, the greater the sound insulating power of the building element. It is measured over the frequency range 100 to 3150Hz. Walls carrying this kind of value have been tested in isolation, without the on-site channels of sound transmission mentioned above.

These two measurements exist to give construction contractors a more accurate idea of how different walls or floors will perform. The same wall measured in laboratory conditions will produce the same result every time, but when measured on-site, results will vary from one space to another. When converting laboratory-rated performance (R_w) to on-site ($D_{nT,w}$), you have to take several factors into account, including the reverberation time and volume of the 'receiving' room, the dimensions of the separating partition and the potential surrounding transmission on-site from the aforementioned channels. This last factor is tied in with the construction quality of the site, and attention to corridor detailing. Unfortunately, because of the $D_{nT,w}$'s potential to vary between partitions, there's no simple formula for conversion. There are a number of assumptions that can be made and generally the difference between R_w and $D_{nT,w}$ can range between 5 – 10 dB. As a rule of thumb, with masonry or concrete constructed party walls and floors the difference will be closer to 5dB, however with lightweight timber and steel constructions the difference will be closer to 10dB.

- R_w – laboratory derived performance figure of building element
- $D_{nT,w}$ – in situ, tested performance of room(s).