



Sheffield Insulations is here to make complex legislation easier for you

In the following pages we've summarised the latest issues surrounding:

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As the leading specialist insulation distributor, Sheffield Insulations' vast experience and commercial expertise allow us to offer you all the sound impartial, technical advice you need with regard to legal and safety requirements as well as product choice.

Today's market place is extremely complex and challenging with ongoing changes to Building Regulations resulting in increased diversity and complexity in product combinations and solutions.

At Sheffield Insulations, our staff receive essential, ongoing training in the current legislation, i.e. Part L, Part E and the Code for Sustainable Homes, and are up to date with the latest MMCs (Modern Methods of Construction), innovative product developments and applications.

As a nationwide specialist insulation distributor, Sheffield Insulations branches can offer you impartial advice and solutions to achieve the required Building Regulations wherever in the UK you are working.

Straightforward specification support from an impartial specialist

In addition, Sheffield Insulations can also offer technical and specification support throughout the whole construction process – to architects, designers and building control managers as well as contractors - via our national team of Technical Specialists.

Our dedicated 'Specification and Support' website provides a wide range of comprehensive information and outlines the specialist services we can offer, such as:

- SAP Calculations
- SBEM
- U-Value Calculator
- Air Tightness Testing
- Interstitial Condensation Analysis (ICA)
- Acoustic Testing
- RIBA Approved CPD Seminars
- Guide to the Code for Sustainable Homes
- Modern Methods of Construction

Visit: www.sispecificationandsupport.co.uk

APPROVED DOCUMENT L - ENGLAND AND WALES

Comprising:

- Part L1A – New Dwellings
- Part L1B – Existing Dwellings (alterations and extensions)
- Part L2A – New Buildings that are not Dwellings
- Part L2B – Existing Buildings that are not Dwellings

The main drivers behind Part L are:

- The UK Government conforming to the new EPBD (Energy Performance of Building Directive)
- To meet climate change objectives under the Kyoto protocol commitments in the reduction of CO₂ emissions.
- To improve the energy performance of buildings (new and existing/domestic and commercial) within the European Union.

New Buildings

In order for the government to achieve its goal of raising the energy performance of new buildings, and reducing CO₂ emissions, compliance to Part L Building Regulations is met by a 'whole building' approach whereby each new dwelling must achieve a specific Target Emission Rate (TER). The TER is calculated by SAP2005 and is carried out in two stages.

This is the only way of showing compliance to the Building Regulations.

U-values and other relevant factors will be based around achieving the TER.

U-values

Part L new build is not met solely by achieving specific or set U-values. Building Regulations provide a set of minimum requirements known as limiting U-values. These values are set at worst case, which means they are the highest acceptable U-value.

eg

The limiting U-value for a wall is 0.35 U-value.

This means the U-value has to be 0.35 or better.

The U-value requirement for each individual dwelling will be unknown until the SAP calculation is completed at the design stage.

Existing Buildings/Refurbishment ADL 1B

Elemental U-values will still apply on existing dwellings but the values will change as per the table below. This effectively means that extensions to existing buildings will be required to achieve superior performance to the rest of the building.

Element	New Elements		Existing Elements		Threshold U-value
	(A) Extensions & New Elements	(B) Replacement Elements	(C) Renovated Elements	(D) Retained Elements (Upgraded)	
Wall - Cavity	0.30	*1 0.35	*1 0.35	*3 0.55	(0.70)
Wall - Other type	0.30	*1 0.35	*1 0.35	0.35	(0.70)
Floor	*2 0.22	*2 0.25	*2 0.25	0.25	(0.70)
Roof - Flat	0.20	0.25	0.25	0.25	(0.35)
Roof - Sloped	0.20 & 0.20 (integral)	0.20 & 0.25 (integral)	0.20 & 0.25 (integral)	0.20 & 0.25 (integral)	(0.35)
Roof - Loft (Joist)	0.16	0.16	0.16	0.16	(0.35)

Key Points

*1 A lesser provision may be appropriate where meeting such a standard would result in a reduction of more than 5% in the internal floor area of a room bounded by the wall.

*2 A lesser provision may be appropriate where meeting such a standard would create significant problems in relation to adjoining floor level.

*3 The 0.55 U-value applies only where it possible to install cavity wall insulation. Any other type of wall should take a 0.35 U-value.

Energy Performance Building Directive (EPBD)

The revisions to Part L form part of the UK's response to the European Building Directive (published 4th January 2003) which has the objective of "promoting the improvement of the energy performance of buildings within the European community". The most significant aspect of this Directive is that Member states will have to ensure that when a building is constructed, sold or rented out, an energy performance certificate is made available.

SECTION 6 - SCOTLAND

Technical handbook (Domestic/Non-Domestic) Section 6 (previously Part J) applies in Scotland.

APPROVED DOCUMENT E - ENGLAND AND WALES

Part E took effect in July 2003 primarily as a response to the increasing number of complaints about noise, a higher density of housing per hectare (PPG) and the recognition of the potential risk from noise to health and well-being.

Approved Document E is split into four sections:

- **E1 – Protection against sound from other parts of the building and adjoining buildings**
- **E2 – Protection against sound within a dwelling/house etc**
- **E3 – Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes**
- **E4 – Acoustic conditions in schools**

In respect of E1 and E2 the document gives examples of constructions which if built correctly should achieve the sound insulation values set out in Tables 1A and 1B below. Sheffield Insulations sales staff are trained and conversant with Part E and can help you select the right material to use when building these construction types.

A major constituent of Approved Document E1 and E2 is **Pre-Completion Testing**, a minimum of one in every 10 dwellings of the same house type are required to be tested and depending on the mix of different types of dwelling in a development, testing will be required on 10% - 30% of the development. For example if a development has only one type of house or flat within it, only 10% will require testing.

If like most developments, there is a mixture of different types of houses or flats, the percentage of dwellings requiring testing is likely to be greater. No testing is required for construction work done in accordance with Approved Document E3.

Tables 1A and 1B below illustrate the airborne sound insulation and impact sound insulation values required in the various types of dwellings. Please note that in the case of airborne sound insulation, $D_{nT,w}$ is the measurement used. However as low-frequency sound is the most difficult frequency range to stop, a C_{tr} (correction factor) is used to take this into account. L'_{nTw} is the measurement used to measure the impact sound insulation of floors (on site).

With airborne sound, the higher the $D_{nT,w} + C_{tr}$ figure the better, and with impact sound, the lower the L'_{nTw} figure the better.

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

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (Minimum values)	Impact sound insulation L'_{nTw} 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

TABLE 1B: Rooms for residential purposes - performance standards for separating walls, separating floors, and stairs that have a separating function

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (Minimum values)	Impact sound insulation L'_{nTw} dB (Maximum values)
Purpose built dwelling-houses and flats		
Walls	43	-
Floors and stairs	45	62
Rooms for residential purposes formed by material change of use		
Walls	43	-
Floors and stairs	43	64

As an alternative to Pre-Completion Testing there is the option to use Robust Details which was accepted as an alternative to Pre-Completion Testing in July 2004. This new way of working is controlled by Robust Details Ltd, which is a non-profit making organisation comprising representatives from, amongst others, Building Control, warranty providers, acoustic advisors and the ODPM (Office of the Deputy Prime Minister).

Robust Details Ltd has already published specifications for Robust Details for walls and floors in the various construction types and at the time of writing these are largely generic specifications rather than those of specific manufacturer solutions. Robust Details Ltd does however assess new candidate Robust Details and form a link with Building Control to maximise quality control.

All Sheffield Insulations branches have a copy of the Robust Details handbooks and can advise you which materials to use when building to any of the Robust Details listed.

SECTION 5 - SCOTLAND

Section 5 of the Scottish Building Regulations (formerly known as Part H) deals with the reduction of sound through separating building elements between domestic buildings.

Separating walls must meet minimum values for weighted standardised difference on airborne sound. Separating floors must meet the weighted standardised difference for both airborne and impact sound. A number of tests are carried out from which the construction must meet a minimum value and overall it must score a higher mean value for the element. Section 5 does not place extra emphasis on low frequency sounds. Section 5 requires Pre-Completion Testing to demonstrate compliance with the regulation.

Requirements

	Mean Value ($D_{nT,w}$ dB) minimum	Individual Value ($D_{nT,w}$ dB) minimum		Mean Value (L'_{nTw} dB) maximum	Individual Value (L'_{nTw} dB) maximum
Airborne Sound			Impact Sound		
Walls	53	49	Floors	61	65
Floors	52	48			

THE CODE FOR SUSTAINABLE HOMES

Prepared by the following establishments: Government, BRE, CIRIA and a senior steering group.

What is the Code for Sustainable Homes?

The Code provides a set of building and design practices for new homes in the UK.

Its aim is to address the serious problem of climate change and reduce the high levels of CO₂ emissions generated from the use of fuel to heat, light, cool, ventilate and run our homes.

It is intended as a single national standard upon which future Building Regulations will be based. The main objective of the Code is to achieve True Zero Carbon Dwellings by 2016.

How does the Code work?

The Code uses a sustainability star rating system from level 1 to level 6.

Each of the six levels communicates the overall sustainability performance of a home with nine sustainability/design categories to be achieved within each level, therefore giving UK homes a mark of quality.

The Code is closely linked to Part L of the Building Regulations, which are the minimum building standards required by law, with level 1 of the Code being set at a slightly higher standard than Part L and very similar to the EcoHomes pass rating. As from April 2007 it was made mandatory for all social housing to achieve a Code level 3, whilst private sector housing have the mandatory requirement to state the level of the Code achieved or to declare a Code level zero (0) rating. However, specific elements of the Code will be incorporated into the changes to be made to Part L in 2010 and 2013, improving the CO₂ emission rate, including minimum levels of water usage, and incorporating site management plans.

The Code will complement the system of Energy Performance Certificates, whilst complying with the BRE Green Guide ratings. All home owners will be provided with a certificate and statement showing the rating achieved for that building, if compliant with the Code. If not compliant with the Code a zero (0) will be recorded, showing that building to be compliant with Part L only.

In addition to reducing domestic fuel consumption, the Code changes the way we construct our homes and how our homes are used, as this impacts massively on the environment. For example, the use of water, polluting materials and generation of waste are three out of the nine sustainability/design categories to be achieved.