

Hea 2 Sound Insulation

Credits available: 4

Aim

To ensure the provision of sound insulation and reduce the likelihood of noise complaints.

Credit Requirements

Credits	
1	<ul style="list-style-type: none"> A commitment to carry out a programme of pre-completion testing based on the frequency listed in <i>Table 2, column A (Supplementary Guidance A: Frequency of Testing Required)</i> for every group or sub-group of houses or flats* <p>AND</p> <ul style="list-style-type: none"> A commitment to achieve the performance standards set out in the Building Regulations for England and Wales, Approved Document E (2003 Edition).
2	<ul style="list-style-type: none"> A commitment to carry out a programme of pre-completion testing based on the frequency listed in <i>Table 2, column B (Supplementary Guidance A: Frequency of Testing Required)</i> for every group or sub-group of houses or flats* <p>AND</p> <ul style="list-style-type: none"> A commitment to achieve the performance standards set out in the Building Regulations for England and Wales, Approved Document E (2003 Edition).
3	<ul style="list-style-type: none"> A commitment to carry out a programme of pre-completion testing based on the frequency listed in <i>Table 2, column B (Supplementary Guidance A: Frequency of Testing Required)</i> for every group or sub-group of houses or flats* <p>AND</p> <ul style="list-style-type: none"> A commitment to achieve airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are at least 3dB lower, than the performance standards set out in the Building Regulations for England and Wales, Approved Document E (2003 Edition).
4	<ul style="list-style-type: none"> A commitment to carry out a programme of pre-completion testing based on the frequency listed in <i>Table 2, column B (Supplementary Guidance A: Frequency of Testing Required)</i> for every group or sub-group of houses or flats* <p>AND</p> <ul style="list-style-type: none"> A commitment to achieve airborne sound insulation values that are at least 5dB higher, and impact sound insulation values that are at least 5dB lower, than the performance standards set out in the Building Regulations for England and Wales, Approved Document E (2003 Edition).

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For the definition of groups and sub-groups, see Section 1 in the Building Regulations England and Wales, approved Document E (2003 Edition).

Applicability

The same approach is taken for new build and refurbishment.

ALL dwellings, throughout the development, must meet the requirements of the relevant EcoHomes performance standards.

Main Information to be Provided by the Developer

1. Specifications must state details sufficient to meet the *Credit Requirements* and the *Guidance* below. This would include the details of the programme of pre-completion testing to be carried out on the development, including the number of groups and sub-groups.
 2. Evidence that the proposed building design has the potential to achieve the performance standards associated with the EcoHomes credit. This evidence could be field test data from previous developments or expert advice from an acoustic consultant.
 3. Confirmation that the acoustic consultancy is accredited by UKAS or a European equivalent for field sound insulation testing, OR that the testing is carried out in accordance with the relevant ISO requirements and the report and all measurement data are checked and verified by an organisation with UKAS accreditation for field sound insulation testing.
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Guidance

1. The EcoHomes performance standards are based on the requirements set out in Part E (2003) of the Building Regulations for England and Wales. However, EcoHomes does not currently accept details built to Robust Standards Details and requires additional tests, UKAS accreditation of testers and higher performance levels (for Credit 4 and 5) than those required by part E. For more details see the *Background* section.
2. Note that the same EcoHomes requirements are set throughout the UK i.e. even though the performance levels are based on the regulations in England and Wales, the same should apply for homes assessed in Northern Ireland and Scotland. For more details see the *Background* section.
3. The assessor needs to confirm that the acoustic consultancy carrying out/ set to carry out the testing is accredited by UKAS or a European equivalent for field sound insulation testing. If the testing has been carried out/ will be carried out according to the relevant ISO requirements this will also be accepted provided that the test reports and all measurement data have been/ will be checked and verified by an organisation with UKAS accreditation for field sound insulation testing.

4. The following table is a simplified form of the credit requirements for reference only.

Table 1: Credit Summary – Improvement on part E

Credits	Improvement on Regulations (dB)	
	Airborne sound $D_{nT,w} + C_{tr}$	Impact sound $L'_{nT,w}$
1	0	0
2	0	0
3	+3	-3
4	+5	-5

Notes to the Table:

- a. A commitment to carry out a programme of pre-completion testing based on the stated number of tests (Table 2) for houses or flats in a group or sub-group. For the definition of groups and sub-groups, see Section 1 in Approved Document E (2003 Edition) of the Building Regulations (England and Wales).
 - b. A commitment to achieve sound insulation values that are better, by the stated amount in Table 1, than the performance standards in Approved Document E (2003 Edition).
 - c. All criteria have to be met for the credit(s) to be awarded.
5. The commitments to pre-completion testing and to achieve the performance standards means that if any test is failed (according to either the performance standards in Approved Document E, for England and Wales, or the enhanced performance standards in EcoHomes, which are 3dB or 5dB higher) then remediation work shall be carried out on the construction and re-tests carried out to confirm that the performance standards have been met.
 6. Evidence that the proposed building design has the potential to achieve the performance standards could be field test data from previous developments, or expert advice from an acoustic consultant.
 7. Specifying structures to the typical types found in Sections 2, 3, 4 and 6 of the Approved Document E (2003 edition, Building regulations England and Wales) will NOT, in itself, be sufficient to achieve the credits. All other conditions of the Credit must be met.
 8. Building regulations England and Wales, approved Document E sections 1.13 to 1.16 describe the grouping procedures to be followed. For example, houses and flats are usually considered as two separate groups, and if there are significant differences in construction type then the groups will need to be broken down into sub-groups.
 9. Detached homes achieve all 4 credits by default as this section is only concerned with direct transfer of neighbour noise. It is rare however to have a development consisting entirely of detached homes.
 10. Testing should be between habitable rooms (i.e. bedroom to bedroom; living room to living room; living room to bedroom etc). If there are no habitable rooms with separating walls or floors no testing is needed, and the dwellings can be treated as detached homes. If habitable rooms only share separating walls or floors with spaces which cannot be tested, such as halls, stairways or small bathrooms, alternative evidence of performance should be provided.

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11. Where there are insufficient separating walls or floors in a development to carry out the number of tests specified in Table 2, all of the available separating walls or floors should be tested. Where all the available separating walls and floors have been tested this will be considered to be equivalent to column B of Table 2, and 2 or more credits will be awarded as appropriate.
12. No more than two airborne and two impact sound insulation tests should be undertaken between a pair of houses or flats i.e. a maximum of two airborne sound insulation tests should be carried out on any separating wall and a maximum of two airborne and two impact tests on any separating floor.

Flats

There is no specific guidance for flats/apartments. The standard approach should be followed.

Refurbishment

There is no specific guidance for refurbishment. The standard approach should be followed.

Special Cases

There are currently none for this issue.

Supplementary Guidance*A: Frequency of Testing Required*

The table below sets out the number of airborne and/or impact sound insulation tests to be conducted on each group or sub-group. A unit is either a flat or a house. Where units contain a single habitable room i.e. bedsits, the number of tests required is halved (see example 5).

For the definition of groups and sub-groups, see Section 1 in Approved Document E (2003) edition of the Building Regulations (England and Wales). Below examples will also give some guidance on how to define groups and subgroups.

Table 2: Frequency of testing required

Number of units of same group or sub-group on the site	Number of tests on separating walls and/or floors for one credit (Column A)	Number of tests on separating walls and/or floors for two or more credits (Column B)	Number of units of same group or sub-group on the site	Number of tests on separating walls and/or floors for one credit (Column A)	Number of tests on separating walls and/or floors for two or more credits (Column B)
1	0	0	31	16	20
2	2	2	32	16	22
3	2	2	33	16	22
4	2	2	34	18	22
5	2	4	35	18	24
6	4	4	36	18	24
7	4	4	37	18	24
8	4	6	38	20	26
9	4	6	39	20	26
10	6	6	40	20	26
11	6	8	41	20	28
12	6	8	42	22	28
13	6	8	43	22	28
14	8	10	44	22	30
15	8	10	45	22	30
16	8	10	46	24	30
17	8	12	47	24	30
18	10	12	48	24	30
19	10	12	49	24	30
20	10	14	50	26	30
21	10	14	51	26	30
22	12	14	52	26	30
23	12	16	53	26	30
24	12	16	54	28	30
25	12	16	55	28	30
26	14	18	56	28	30
27	14	18	57	28	30
28	14	18	58	30	30
29	14	20	59	30	30
30	16	20	60	30	30

B: Example of Testing Series and Compliance.

Example 1 - Two rows of identical terraced dwellings.

Each row consists of 6 houses, giving a total of 12 units. Reading from Table 2, this development needs 6 or 8 airborne tests performed on their separating walls, as set out in Table 3. As there are no separating floors, that is all the testing required.