

TR01

Test and performance requirements

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1 Description

This document contains the test and performance requirements for the assessment of a candidate Robust Detail (CRD), or amendments to an existing RD (flanking constructions or component). The test requirements differ slightly between these assessments, but the performance requirements remain the same throughout.

2 Performance criteria used by RDL to assess applications

Airborne sound insulation of separating walls and floors:

For England and Wales	For Scotland
Individual values must be $\geq 47\text{dB } D_{nT,w} + C_{tr}$	Individual values must be $\geq 58\text{dB } D_{nT,w}$
*Mean value must be $\geq 50\text{dB } D_{nT,w} + C_{tr}$	*Mean value must be $\geq 61\text{dB } D_{nT,w}$

Impact sound transmission of separating floors:

For England and Wales	For Scotland
Individual values must be $\leq 60 \text{ dB } L'_{nT,w}$	Individual values must be $\leq 54\text{dB } L'_{nT,w}$
*Mean value must be $\leq 57 \text{ dB } L'_{nT,w}$	*Mean value must be $\leq 51\text{dB } L'_{nT,w}$

**Note: The mean value is calculated at both Stage A (mean of 8 individual values) and Stage B (mean of 30 individual values including Stage A test results), and is calculated from the arithmetic mean, where the rounding is based on a single decimal place.*

3 Arranging testing

In all cases, you (the Proposer) are responsible for arranging and financing the testing, and for ensuring that the test body is briefed to test in accordance with the requirements. Sound testing may be undertaken on developments outside of the country (or countries) where the final detail will be offered for registration, provided the tested construction can be replicated on future registered plots while still being in accordance with all the relevant and applicable Standards and Building Regulations.

4 Test bodies

Sound insulation tests must be carried out in the same way as set down in: Approved Document E of the Building Regulations for pre-completion sound testing; or Section 5 (Domestic) of the Building (Scotland) Regulations. Test Bodies must be either UKAS accredited (or European equivalent) or ANC registered for testing in accordance with the relevant ISO 140 standards.

www.ukas.org

www.theanc.co.uk

5 Test reports

Results of testing must be rated and reported in accordance with ISO 717 and should contain the following:

- measurement data for third octave band frequencies 100Hz to 3150Hz
- sound pressure levels in source and receiving rooms
- reverberation times of receiving rooms (measured using T_{20})
- D_{nT} and L'_{nT} values
- single weighted values of $D_{nT,w}$ and $L'_{nT,w}$
- spectrum adaptation terms C and C_{tr} (ISO 717-1)
- spectrum adaptation terms C_1 (ISO 717-2)
- test reports must clearly describe, in addition to any other requirements in the relevant test standards:
 - the construction under test
 - the material components of the main separating element
 - flanking walls and linings.
- Plans and sectional drawings of the dwellings on all sides of the tested wall or floor must be provided and these must include:
 - room dimensions
 - dimensions of any steps and/or staggers.

6 Test sampling requirements

The tables below indicate minimum sampling requirements.

New Robust Detail					
Stage	Min no. tests	Min no. Sites	Max no. tests at any one site	Min no. test bodies	Max no. tests by each test body
A	8	1	8	1	8
B	22	3	8	2	15
Total	30	4	8	3	15

New Flanking Element to Existing Robust Detail					
Stage	Min no. tests	Min no. Sites	Max no. tests at any one site	Min no. test bodies	Max no. tests by each test body
A	8	1	8	1	8
B	7	1	7	1	7
Total	15	2	8	2	8

- Test constructions must be part of new homes* on actual building sites (i.e. no lab testing).
- The combined tests of Stage A & B should not be carried out on sites of, or constructed under the control of the same builder/developer organisation, i.e. two separate legal entities must be involved.

** Note it may be possible to submit PCT results undertaken for new build halls of residence or retirement/care homes, provided the layouts are similar to a house or apartment. Please contact RDL to discuss before proceeding with this.*

7 Steps & Stagers between dwellings

Steps and stagers should be avoided where possible, or where unavoidable should be restricted to a maximum of 300mm.

8 Test Rooms

Test rooms should be restricted to living rooms, kitchens, dining rooms and bedrooms. In the case of wall tests, no fitted kitchen or wardrobe units should be on or in front of the separating wall being tested. Preferably, rooms should have a min. volume of 25m³. RDL may reject tests conducted in rooms less than 20m³ if modal resonances appear to have affected the test result.

9 Tests on separating walls

Up to two individual tests may be carried out on any one separating wall, providing there are two pairs of valid rooms either side of the wall (e.g. in a pair of houses with living room **pairs** on the ground floor and bedroom pairs on the first floor), two tests can be carried out, one at ground floor and one at first floor.

10 Tests on separating floors

Individual tests on separating floors are always considered to comprise both an airborne sound insulation test and an impact sound transmission test (e.g. for Stage A, 8 airborne and 8 impact tests should be carried out to make up 8 test structures.) As the airborne and impact tests are submitted as a set, they should be carried out on the same separating floor. Up to two individual tests may be carried out on any one separating floor, providing there are two **pairs** of valid rooms either side of the floor (e.g. in a pair of flats with living rooms stacked one directly above another and bedrooms stacked one directly above another) then two tests can be carried out, living room pairs and bedroom pairs.