GUIDELINE FOR THE PREPARATION FOR FLOOR IMPACT INSULATION TESTING TO ISO 16283 PART 2

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This document defines the field requirements to carry out floor impact insulation tests as per the requirements of ***ISO 717 – 2 Acoustics – Rating of sound insulation in building and of building elements – Part 2: Impact sound insulation*** and testing standard ***ISO 16283.2 Acoustics – Field measurements of sound insulation in buildings and of building elements - Part 2 Impact sound insulation*** This test uses a standardised tapping machine (see Figure 1 below) which limits the minimum size of sample that can be tested.

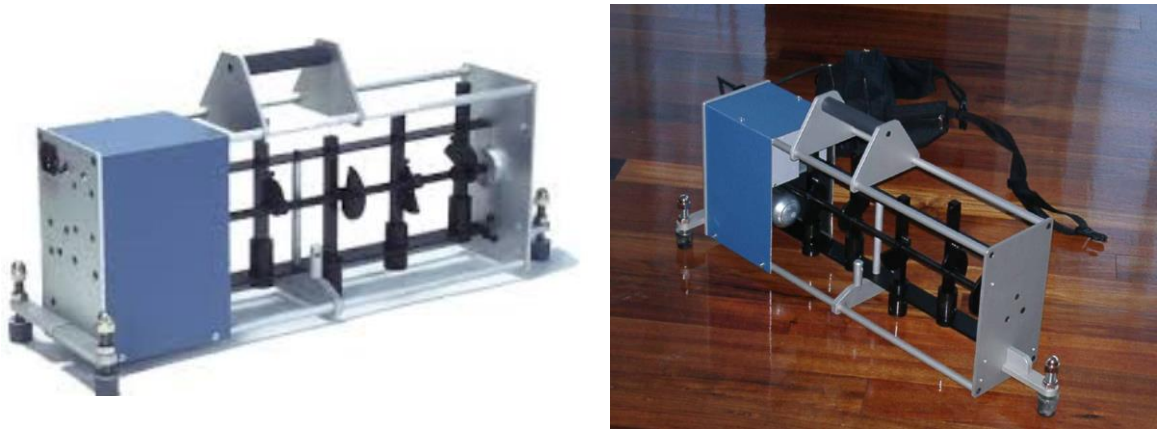

Figure 1. Norsonics standardized tapping machine

The test is conducted by applying impact loads from the 5 falling weights from the tapping machine to the surface being tested with the resulting sound pressure levels measured in the lower receiving room. The measured 1/3 octave band noise levels are then applied to standardised calculations to arrive at the single figure insulation rating.

To ensure compliance with the standards the following considerations apply:

1. Test samples must not be less than 1200x1200mm square. 1,500mm x 1,500mm is preferred.

2. Test samples should not be located on or adjacent to major structural elements. The samples should be a minimum of 1.2m away from any wall, builders work or structural column.

3. The receiving room should not be less that 4m x 4m, with a ceiling height not less than 2.1m.

4. The shell of the area to be tested and the lower receiving room must be fully complete (wall, floor façade and doors). All windows and doors in the perimeter façade of the receiving room must be

installed. This is necessary to ensure that airborne noise from the tapping machine flanking and other external noise sources does not affect the measured impact noise levels.

5. There must be no easy noise path for sound via fire stairs, lift shafts and external reflections from the source room to the receiving room.

6. No construction activities should be audible inside the receiving room whist the tests are being conducted.

Further to the above the following should also be applied:

- Test samples should be allowed sufficient time to cure prior to the tests being carried out. This will typically require a minimum of 48 hours for impact isolation screeds and bonding adhesives.

- Where fully tiled floors are to be tested, the tiles should be laid with a minimum 3mm clearance between the tile and any adjacent wall surface. This is necessary to minimise structural flanking.

- Floor samples and the adjacent floor should be swept clean.

- The samples should be laid in exactly the same way that the full floor would be laid.

When floor samples are tested it is standard practise to also test the base floor slab + the lower ceiling system. This requires a cleaned clear area on the base slab of minimum 1m x 1m, separated from any walls or structure by a minimum 1.2m.

Under ISO 140 tapping should be conducted for a minimum of 1 minute in at-least 4 different positions. With test samples the test is normally conducted across the 2 diagonals (ie 2 "tapps") due to the limited area.

To carry out tests on a base slab and say 4 samples would normally take close to 1.5 hours on site. This includes time for measuring the receiving room dimensions, checking the samples, tapping the base slab and samples and carrying out the required receiving room reverberation time measurements. A single test will take close to 30 minutes.

Note: The tapping machine has the potential to damage floor surfaces by virtue of its 5 off 500gm impact weights falling through 40mm. At the time of writing the only damage inflicted onto a floor surface in more than 15 years, has been damage to the corner of a tile when one of the hammers was inadvertently located too close to the corner of a floor tile.

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