

# MEASUREMENT AND ASSESSMENT OF DRUM SOUND

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## 1. INTRODUCTION

Drum sound, that is the walking noise in the same room as the walker, is a well-known problem that has been under discussion for many years. It is generally recognized to be a problem but as yet it has not been possible to get enough agreement on the issue in order to prepare an international standard. Some years ago the European Producers of Laminate Flooring (EPFL) prepared a test method but it was later withdrawn. There is also a French standard NF S 31-074. Work was then started within CEN TC 126 but after a few years the work item was deleted from the program because of lack of progress. It was re-instated at the last plenary meeting in September 2007. In the meantime it was decided to prepare some guidelines in Sweden which would make it possible to test and get rid of the most noisy floor coverings. For this purpose a SIS Technical Report 2007:15 has been issued and the contents will be presented in this paper. The laboratory method used is similar to but not identical to the method published in the French standard.

## 2. MEASUREMENT METHODS

The SIS Technical Report uses the standardized ISO tapping machine as sound source. It includes three different methods, one laboratory method and two field methods.

The laboratory method is very similar to the French method. However, it also includes rules on how to correct measured impact sound levels for the noise generated by the mechanics of the tapping machine. The error due to this background noise is then determined using the rules of the ISO Guide for Uncertainty of Measurements.

One field method is very simple as it only requires measurement of the impact sound level and no correction of this level in case the room is normally furnished. There is also one more detailed method which both requires the measurement of

reverberation time and correction for the influence of the background noise generated by the mechanics of the tapping machine.

## 3. CALIBRATION OF THE SELF-GENERATED NOISE OF THE TAPPING MACHINE

The report gives guidance on how to calibrate the tapping machine with respect to self-generated noise. An example of test rig screening the noise from the floor is given and examples of noise from four different models of tapping machines are given when tapping on bare concrete.

## 4. ASSESSMENT OF MEASURED LEVELS

Guidance values for drum sound are also given in the report. These values have been derived by taking bare concrete as a reference. Due to the inherent uncertainty of the method only rather moderate values are recommended. In principle a good floor covering is slightly better than bare concrete whereas an acceptable floor covering may be a few dB worse.

## 5. CONCLUSIONS

The SIS Technical Report 2007:15 can be used to measure and assess drum sound both in the laboratory and in the field. The report can be used to put up requirements and to verify the compliance with these requirements for floors both in the laboratory and the field.