

## UNCERTAINTY IN ESTIMATING THE VIBRATION REDUCTION INDEX FROM DIRECT MEASUREMENTS IN BUILDINGS

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### ABSTRACT

It is well known that the values of sound insulation in the laboratory can be significantly different from those measured in situ, and these differences may be partially associated with the lateral transfers through the elements that make up a system constructive. To forecast the acoustic insulation to airborne noise or noise impact on a building, one can use the standard UNE-EN 12354 [1]. This rule evaluates the influence of transmissions by mean of the lateral vibration reduction index. This index can be obtained in two ways: using the theoretical expressions registered in the UNE-EN 12354-1 [1] standards or through the measurements of the velocity level difference between construction elements and its structural reverberation time [2-4].

The use of theoretical equations is limited to certain constructive solutions; new solutions with materials that have been incorporated to market are not covered. Therefore, the only possible approach in some cases is the measurement or design of new predictive models. There isn't available a standard procedure for measuring building, however there does exist for laboratory studies. The laboratory procedure is established in the standards 10848, parts from 1 to 3 [5] and it is used, along with other references for measuring in buildings.

Therefore, taking into account these regulations, it has been made several measures in situ trying to provide findings or evidence on the influence of the lateral transfers on the weakening of acoustic isolation of a particular building element. Since this protocol is not standardized yet, it is appropriate to realize studies about errors in measurement processes and also about the stability of the formulation of the vibration reduction index versus errors in the measurement phase. Results on these latter aspects are presented in this paper.

### REFERENCES

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