

ABSTRACT

Current regulatory changes that have occurred in recent years in the field of building acoustics have brought about a major change in the philosophical view of building design. The new regulation (DB-HR) does not seek to establish insulation requirements in building walls, but sets minimum insulation values between adjacent rooms. This change has led to the need to evaluate the accuracy of predicted models that have been established for this purpose and take into account direct, indirect and flank sound transmission.

This work, focused on airborne sound insulation in indoor rooms with lightweight structure and plasterboards, studies several different types of walls by calculating the theoretical predictions of insulation calculation models established by the current regulation.

First, the work reviews the theoretical background on which to work, giving way to the principles and describing the instruments that underpin the predicted models, and thus the basis on which the standard measurements were subsequently developed. Secondly, the predictions are calculated for the 61 acoustic pairs of compounds that are part of real case studies, and later perform field sound insulation measurements of said predictions. Finally, an analysis of the results is obtained from different aspects: type of separating element, building type and global analysis.

Comparing the results with other research about the experimental testing of insulation calculated using theoretical models, standard field measurements, or studies that have been established through practical experience or theoretical approximation, the decline of insulation produced by indirect transmission contributes to the experimental validation of the predicted calculation model established in the DB-HR by comparing theoretical predictions and field measurements.