Norms and Standards in building acoustics

In this whitepaper you can learn more about the most important norms and standards in building acoustics.

NEN 5077

NEN 5077 gives an overview of several topics regarding sound insulation within the building acoustics environment. One of these topics describes the airborne sound insulation between adjacent rooms of for example partition walls. The airborne sound insulation between adjacent rooms needs to comply to regulations. To test whether the airborne sound insulation in between rooms is sufficient we make use of the sound reduction index R and the weighted sound reduction index R_w. NEN 5077 forwards the reader to different standards that describe how to perform measurements and how to perform calculation to reach the sound reduction index R and the weighted sound reduction index R_w.

NEN-EN-ISO 16283-1

NEN-EN-ISO 16283-1 describes how to perform measurements of the sound pressure level in the sending room (room with sound source) and the receiving room (room in which sound is received). The standard describes on which location measurements should be performed within the individual rooms and what the measurement restrictions are with respect to distance between the individual microphone positions and the distance between the sound source and the microphone. The difference between the sound pressure level in the sending room and receiving room is one of the quantities that is used to calculate the sound reduction index. The standard also describes a correction term, which needs the input of the surface of the object under test S, the volume of the receiving room V and the reverberation time of the receiving room T. Finally, a formula is described indicating how to calculate the sound reduction index R in octave bands and in one-third octave bands.

NEN-EN-ISO 717-1

NEN-EN-ISO 717-1 describes which calculations should be performed to get from the sound reduction index R to the weighted sound reduction index R_w. The standard gives a description of how the airborne sound reference curve shifting method should be performed to reach the weighted sound reduction index R_w, which is described by a single number. The calculations from the sound reduction index R to the weighted sound reduction index R_w are fully implemented on the CAM iV64.

NEN-EN-ISO 3382-2

NEN-EN-ISO 3382-2 describes how reverberation time measurements should be carried out in the receiving room. The standard describes the measurement procedure behind the reverberation time and also where the microphones and sound sources should be positioned within the receiving room. The reverberation time will be used as an input to calculate the sound reduction index R.

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