

Interpretation of DIN 18041



How to interpret the rating method according to DIN 18041

Within the statistical calculation IMMI supports a rating method for the predicted reverberation time according to the German standard DIN 18041:2016-03: "Acoustic quality in rooms – Specification and instructions for the room acoustic design". Within the standard, rooms are divided into two different groups:

- Rooms of category A: the acoustic quality ensures an understanding (speech) or optimum hearing pleasure (music) over the whole dimension of the room
- Rooms of category B: the implemented absorbing area ensures an adequate damping (in relation to the room use) to reduce the indoor noise

Depending on the room use and the room volume the named standard recommends

- In case of category A: a reverberation time (incl. a given tolerance range) for the frequency range including the octave bands 125 Hz to 4000 Hz to ensure the acoustic quality. If the predicted reverberation time is less than the recommended value including tolerance range an understanding over the whole room dimension is not guaranteed (according to sound level). If the predicted reverberation time is higher than the recommended value including tolerance range the speech intelligibility is not as good as the room use requires (according to the reducing effect of reflections).
- In case of category B: a minimum value (in square meter) of absorbing area for the frequency range including the octave bands 250 Hz to 2000 Hz that should be installed in the room to ensure an adequate noise damping. If the proportion of absorbing area to room volume is less than the recommended value, the increase of background noise due to reflections could be too high according to the room use.



The room use can be chosen in the editing mask of the room element. The following room categories are available:

Usage category	Description	Examples
A1	"Music"/musical performance /intermediate speech intelligibility	room with focus on unplugged musical presentation
A2	"Speech, presentation" / frontal lecture/ simultaneous communication between different room positions unusual	courtroom, auditorium, meeting room, rehearsal room
A3	"education/communication" – usage category A2 for aurally handicapped people	classroom, conference room, breakout room in preschools, nursing facilities
A4	usage category A3 for aurally handicapped people, unsuitable for rooms bigger than 500 m ³ and for any kind of musical performance	see A4
A5	"sport"/communication over short distances	gym, natatorium
B1	rooms without residential quality	corridors, staircases and entrance halls only for traffic use (except traffic areas in schools, preschools and nursing facilities)
B2	rooms for a short term rest	traffic areas with quality of stay, exhibition space, counter area
B3	rooms for a long term rest	breakout rooms, traffic areas in schools, preschools and nursing facilities, lounges, surgeries, operating theatres, labs, libraries
B4	rooms with need for noise reduction and spatial comfort	reception, labs with permanent use, circulation counter in libraries, output area in canteens, office space
B5	rooms with strong need for noise reduction and spatial comfort	canteen in schools, preschools and nursing facilities, working rooms with high noise level (e.g. workshops), call center, leisure areas in schools and preschools

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