# Overview of applicable standards and regulations in the field of room acoustics in the European area

| | Title of the standard | Content / Comments | Explanations |
|---|---|---|---|
| **Austria** | **ÖNORM B 8115-3** Sound insulation and architectural acoustics in building construction – Part 3: Architectural acoustics | Requirements for room acoustics for<br>a) Rooms in which a good audibility (speech intelligibility) should be ensured (event rooms, ...)<br>b) premises in which noise reduction is the primary objective and sufficient intelligibility of speech is necessary (offices, staircases, swimming sports halls, ...) | - Formula and graphics for optimal reverberation time<br>- Although tolerance ranges differ slightly, they are based on DIN 18041<br>- Tables for average sound absorption |
| | **OIB Richtlinie 5** Soundproofing | Applicable for buildings and parts of buildings which serve the longer stay of humans.<br>These include, in particular, residential buildings, dormitories, office buildings, … | - The OIB guidelines serve the Austrian-wide harmonization of the building regulations. They are issued by the OIB and adopted by the federal states for construction law.<br>- Roughly based on ÖNORM B 8115-3 and thus on DIN 18041 |
| | **VOLV** - Regulation for noise and vibration | The regulation applies to workplaces, construction sites and external workplaces within the meaning of the ASchG for activities in which the workers are or may be exposed to a risk from noise or vibration during their work. | - Provides noise exposure limits at the workplace<br>- various decrees with reference to room acoustics planning, etc. |
| **Germany** | **DIN 18041** - Acoustic quality in rooms –<br>Specifications and instructions for the room acoustic design | Applies to rooms up to a volume of 5000 m³<br>Two applications are distinguished:<br>Group A: acoustic quality over medium and long distances (classrooms, lecture halls, meeting rooms, ...)<br>Group B: acoustic quality over shorter distances: dining rooms, canteens, offices | - When applying this standard, it must be taken into account that legal regulations exist in Germany for the establishment and operation of workplaces. This applies in particular to the Occupational Health and Safety at Work Act, the Workplace Ordinance and the workplace rules based on it. The latter, in particular, contain concrete specifications and are available on the websites of the Federal Institute for Occupational Safety and Health (BAuA). |
| | **VDI 2569** - Sound protection and acoustical design in offices | Room and building acoustics recommendations that can become requirements through private law agreements. Treats the reduction of speech intelligibility from neighbouring areas and the reduction of noise for trouble-free work. | - is not actually used in practice because the distance criteria in the real kind can not be fulfilled<br>- see also lecture dr. Liebl Akustik Forum Raum und Bau 2018 |
| | **ASR 3.7** - Noise | Technical rules for workplaces (ASR) reflect the state of the art, occupational medicine and hygiene, as well as other reliable occupational knowledge for setting up and operating workplaces. | - In compliance with the technical rules, the employer can assume that the corresponding requirements of the regulation are fulfilled.<br>- Minimum requirements |
| **Switzerland** | **SIA 181** - Sound insulation in buildings | Room and building acoustic requirements<br>Sound insulation, building acoustics proof, requirement levels | - Ensuring a predefined sound insulation in building construction<br>- Consideration of audibility in rooms with reference to the standard DIN 18041 |
| | **Acoustic limits and guide values** - SUVA | Minimum acoustic requirements for workplaces | - Swiss counterpart to ASR 3.7 and VOLVO<br>- Noise emission and immission limit values<br>- Minimum room acoustic requirements |
| **Italy** | **UNI 11367** - Acoustics in building - Acoustic classification of building units - Procedure for assessment and verification in places | This standard defines the criteria for measuring and assessing the requirements of acoustic properties of buildings. | - Construction and room acoustic requirements<br>- acoustic classification and evaluation<br>- Room acoustics in the informative Annex C |
| | **UNI 11532** -room acoustic properties of small rooms | Gives guidelines for the acoustic quality of the room, depending on the type of use of the room. | - divided into the two standards UNI 1603376 and UNI 1603377<br>- currently divided into: school, conference rooms, multifunctional rooms, restaurant, office<br>- is roughly based on DIN 18041 |
| **United Kingdom** | **Building Bulletin 93** - Acoustic Design of schools | … to ensure that the design and construction of school buildings provide acoustic conditions that enable effective teaching and learning. | - no regulations in the UK<br>- BB93 applies to classrooms<br>- but it is also referenced for rooms in other areas it |
| **France** | **NF S31-080** - Acoustics - Offices and associated areas - Acoustic performance levels and criteria by type of spaces | Acoustics - Offices and Associated Spaces - Acoustic performance levels and criteria per room type | - treated areas are: single office, collective office, open space, meeting room, relaxation area, restaurant<br>- This standard applies to new premises, renovations and room changes |
| | **Arrêté du 25 avril 2003** | sets the noise thresholds and the technical requirements applicable to establishments<br>It applies to new buildings or new parts of existing buildings. | - table containing reverberation times corresponding to the arithmetic mean at frequencies of 500 Hz, 1000 Hz and 2000 Hz<br>- List with minimum absorbent material depending on the room size in percent |
| **Sweden** | **SS 25268** - Acoustics - Sound classification of spaces in buildings | Institutional premises, rooms for education, preschools and leisure-time centres, rooms for office work and hotels | - Rooms are divided into four classes A to D where A is the best class<br>- fix reverberation times for various rooms (dwellings, hotels, offices, schools,…) depending on the room classes<br>- List with minimum absorbent material depending on the room size in percent |
| **Finland** | **SFS 5907** - ACOUSTIC CLASSIFICATION OF SPACES IN BUILDINGS | The standard defines the acoustic classes of buildings, as well as the limits for airborne and impact sound insulation and for the levels of noise caused by heating, plumbing, air-conditioning and electrical appliances inside and outside buildings and also for the noise levels caused by road traffic and the limits for room acoustics. | - Rooms are divided into four classes A to D where A is the best class<br>- for new buildings class C is the minimum class to be reached<br>- fix reverberation times for various rooms (dwellings, hotels, offices, schools,…) depending on the room classes<br>- List with minimum absorbent material depending on the room size in percent |
| **Norway** | **NS 8175** - Acoustic conditions in buildings | Sound classification of various types of buildings | - reverberation time is depending on the type of use of the room and the height of the room<br>- room classes A to D |
| **Denmark** | **SBi-anvisning 218** - Instructions for the sound conditions<br>in class and daytime facilities | guiding design values for sound conditions in teaching and day-care facilities | - The guide must be seen as a supplement to the sound regulations in the Building Regulations<br>- reverberation time depending on the type of use<br>- recommended absorption area depending on the floor size and absorption class |
| | **DS 490** - Sound classification of dwellings | purpose: improve the acoustic quality of homes so as not to<br>only the minimum requirements are met | - divides rooms into 6 classes from A to F<br>- The scope of this standard is housing, including hotels, colleges, guesthouses, inns, club apartments,<br>boarding schools, nursing homes, nursing homes, residential institutions and similar buildings used for accommodation. |
| **Poland** | **PN-B-02151-4** - Building acoustics. Noise protection in buildings | standard is a completely new document, the first Polish Standard referring directly to interior acoustics. | - reducing noise in rooms by limiting its component, which is reverberation noise<br>- ensuring speech intelligibility enabling proper use of communication rooms<br>- describing the need of covering walls with absorbent material too |
| **EN und ISO standards** | **EN ISO 354** Acoustics – Measurement of sound absorption in a reverberation room | Uniformity in the measurement methods and measurement conditions of sound absorption in reverberant spaces | - Description of the reverberation room method for the determination of sound absorption<br>- Results obtained can be used for comparative purposes and for the design calculation in room acoustics |
| | **EN ISO 3382 -3**: Acoustics — Measurement of room acoustic parameters — Part 3: Open plan<br>offices | Part 3: Open plan offices; Method for measuring room acoustic properties in furnished open-plan offices | - Evaluation of the acoustic situation in open-plan offices<br>- Main goal: Achieve a good private conversation environment<br>- Single values largely match the perceived acoustic conditions |