

TECHNICAL DATA SHEET

OPTIONS FOR SUBSEQUENT SOUND INSULATION WHEN INSTALLING PARQUET AND LAMINATE FLOORING (UG 12)

The client or planner often requests an additional noise reduction measure be carried out in the building by the floor or parquet layer.

Information by the manufacturer and/or the installer raise expectations of a significant reduction in footfall sound through suitable insulating underlays or even by sticking with an elastic adhesive. Almost all information on sound reduction refers to the potential reduction of footfall sound. When evaluating the desired or promised sound reduction, however, the special characteristics of the dB (decibel) as the unit of measure of the sound pressure level must be taken into account. Noise reduction measures that have already been implemented must also be taken into account, although this does not simply involve a straightforward addition of the individual insulation values. Calculation example:

constructed in accordance with DIN 4109-1 soundinsulation in building constructions, it is barely possible to audibly reduce the footfall sound through underlay membranes or similar measures. Furthermore, according to DIN 4109, it is not permitted to include the top surface layer in calculations of the sound insulation. The flooring installer merely has to ensure that no additional sound bridges are installed (such as adhesive or levelling compound in the edge joint, adjacent hard coverings without sufficient wall clearance).

FOOTFALL SOUND IMPROVEMENT IN OLD BUILDINGS

In old building refurbishment, noise reduction made possible by underlay sheets or some other method can certainly make sense. However, there should be no exaggerated expectations from these measures either. In particular, the high noise reduction promised from some adhesive producers by elastic sticking depends very much on the conditions on site and the working conditions. For example, if the application quantity is too small, the subfloor is uneven or the adhesive is applied unevenly, the sound reduction values achieved by the adhesive manufacturer under precisely defined conditions in the laboratory are not achieved in practice.

Calculations with dB:

$$50 \text{ dB} + 50 \text{ dB} = 53 \text{ dB}$$

$$50 \text{ dB} + 55 \text{ dB} = 56 \text{ dB}$$

$$50 \text{ dB} + 60 \text{ dB} = 60 \text{ dB}$$

Change due to reduction in noise level

Noise level reduction	Sound energy	Volume reference value
-3 dB		perceptible
-10 dB		halved
-20 dB		reduced by 3/4

FOOTFALL SOUND IMPROVEMENT IN NEW BUILDS

What is particularly noticeable is that, by adding the same sound pressure level values together, this only results in an increase of 3 dB, which is at least an audible change in volume.

By adding disparate values together with a difference of 10 dB or more between them, the sound pressure level practically does not increase at all and there is no measurable or audible change in volume. For example, on a floating screed which was properly

Here, elastic underlay sheets, which are otherwise used for mechanical decoupling and relief of the subfloor during parquet bonding, are preferable, as they are always available in an even, defined thickness under the top covering. In addition, combination of material thickness + elasticity of comfort pads generally results in a noticeable improvement in walking comfort.

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DIFFERENTIATION BETWEEN AMBIENT AND FOOTFALL SOUND

At site, it is necessary to distinguish the sound propagation in the room of the installation itself (ambient sound) from that in the room below (footfall sound). The often neglected ambient sound is not yet defined in standards and regulations, but is actually the most important criterion for the client. For footfall sound, it hardly matters whether the parquet or laminate flooring is floating or firmly bonded to an insulating underlay. For evaluating ambient noise, however, almost exclusively decisive factors are the criteria of floating installation or fixed bonding. The bonding process extremely reduces the natural vibration behaviour of the floor covering, thus avoiding the typical hollow sound and reverberation of a floating laminate floor or multilayer parquet. Clear audible differences between elastic, hard-elastic or hard adhesive or bonding to underlay sheets are not detectable. The decisive factor in reducing ambient noise is exclusively a fixed connection to the subfloor, as this is the only way to effectively avoid the disturbing natural vibrations of the surface covering.

The full-surface bonding of laminate floors is rarely carried out in practice as, on the one hand, it does not reflect the typical positioning of this product (often very inexpensive, quick and easy to install, easy to remove), and on the other hand it also conflicts with the technical properties of this covering (cannot be renovated, use of relatively expensive reactive resin adhesives necessary). This also provides a valuable argumentation aid for the expert installer in favour of high-quality, solid or multi-layer, fully bonded parquet floors.

The information provided above corresponds to the current state of the art. The information is purely indicative and non-binding, since we have no control over the installation process and because the actual installation conditions on site vary. Therefore no claims can be made based on this information. The same is true for the commercial and technical advisory services that are provided without obligation and free of charge. We therefore recommend carrying out sufficient testing of your own in order to determine whether the result is suitable for the intended purpose. 092022