ErgoFloor®

APPLICATION BROCHURE

REGUPOL SONUSFIT

Acoustical solutions for gyms in mixed-use buildings

REGUPOL

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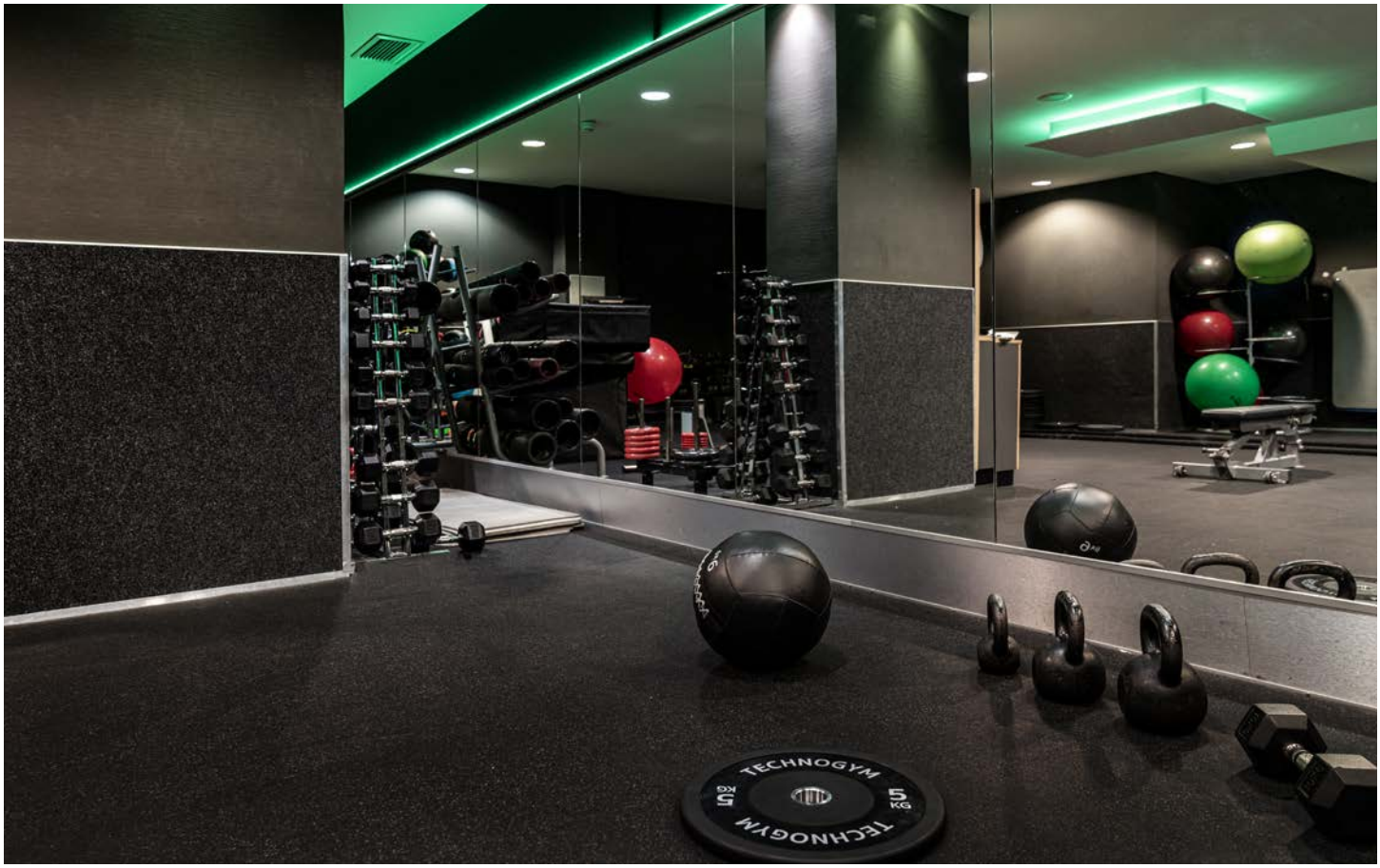
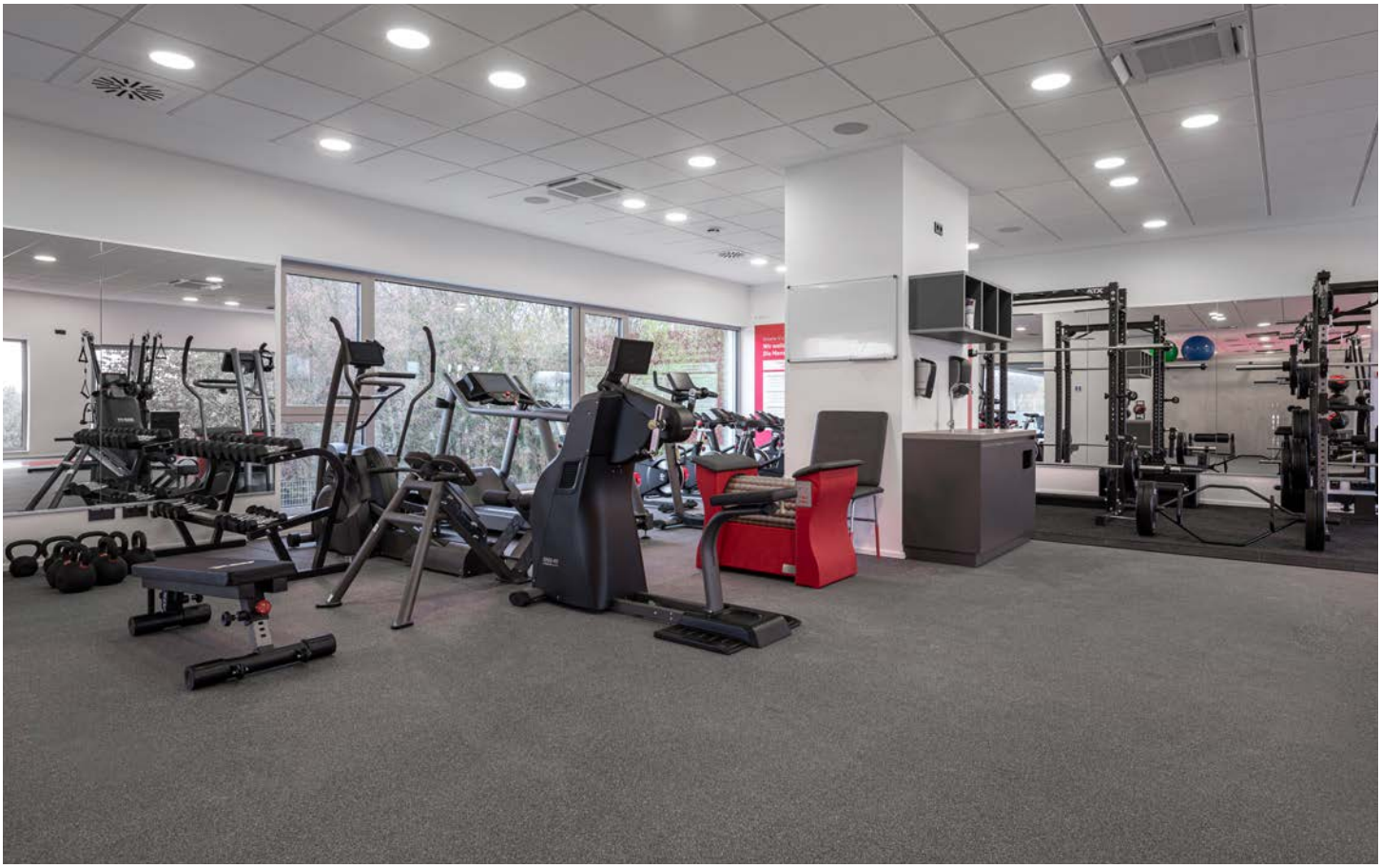


THE NEED FOR
ACOUSTICS IN GYMS

In mixed-use buildings, different utilization concepts are combined with each other. Gyms provide a modern leisure infrastructure. The more extensive the range of courses and equipment, the more attractive the gym. To ensure the peaceful coexistence of the gym with other areas of life, an efficient sound-proofing solution which also isolates the heavy- and low-frequency excitation by dropping dumbbells is required.

These requirements on sound reduction are particularly complex due to different training methods and types in gyms. In addition, there is not yet a standardized test method for acoustical measurements under conditions similar to those in gyms. So how do you evaluate such sound events?



SPECIAL
CHALLENGES

The main problem is the lack of standardization. The tapping machine offers a standardized measurement procedure but it doesn't represent an application oriented method for this kind of noise. The Japanese rubber ball is also standardized and additionally provides low-frequency excitation, but doesn't feature the necessary mass to simulate the energy input from dumbbells sufficiently.

Initial measurements with excitation sources close to the application, such as dumbbells, barbells and kettlebells, showed clear limitations in the reproducibility of the sound events, which can be attributed to the geometry of the test specimens. When dumbbells or barbells are dropped, they rarely hit the ground with both sides simultaneously. With a kettlebell, on the other hand, this phenomenon doesn't occur. However, the base of that type is a flat one, which means that the edge can hit the ground at different angles. These phenomena generate different signals, which increases the deviation in the individual measurement results.

OUR APPROACH

In order to ensure the reproducibility of sound events and to comprehensively represent the most diverse tasks, we first constructed a dropping machine that can lift various test specimens with a mass of up to 200 kg to a height of two meters. The drop height is measured from the upper edge of the floor to the lower edge of the excitation source. By using steel balls with masses of 30 kg and 75 kg, it was possible to optimize the reproducibility to a sufficiently accurate level. The small deviations don't only occur in the laboratory but can also be transferred to in-situ measurements. The standard deviation here is also about 1 dB.

With this application-oriented and reproducible measurement process, **REGUPOL** is able to carry out numerous in-house tests. In this way, a wide variety of systems for the fitness sector can be compared with each other. Springy and damping layers were combined in such a way that not only the levels remained low, but also the risk of injury. These are the results of the symbiosis of different expertises of **REGUPOL**: The **sonusfit** range combines long-term experiences in the fields of vibration technolgy and sound insulation with the equally long-term experiences in the field of fitness flooring. Thus, in addition to the clear goal of developing acoustically effective flooring systems, the focus has always been the maintenance of the functional sports properties.


REGUPOL

OUR SOLUTIONS:

SPORTS FUNCTIONALITY AND QUIETNESS
WITHOUT COMPROMISE

As a result, the portfolio of the **REGUPOL sonusfit** range combines outstanding sports functional properties with highly efficient sound insulation.

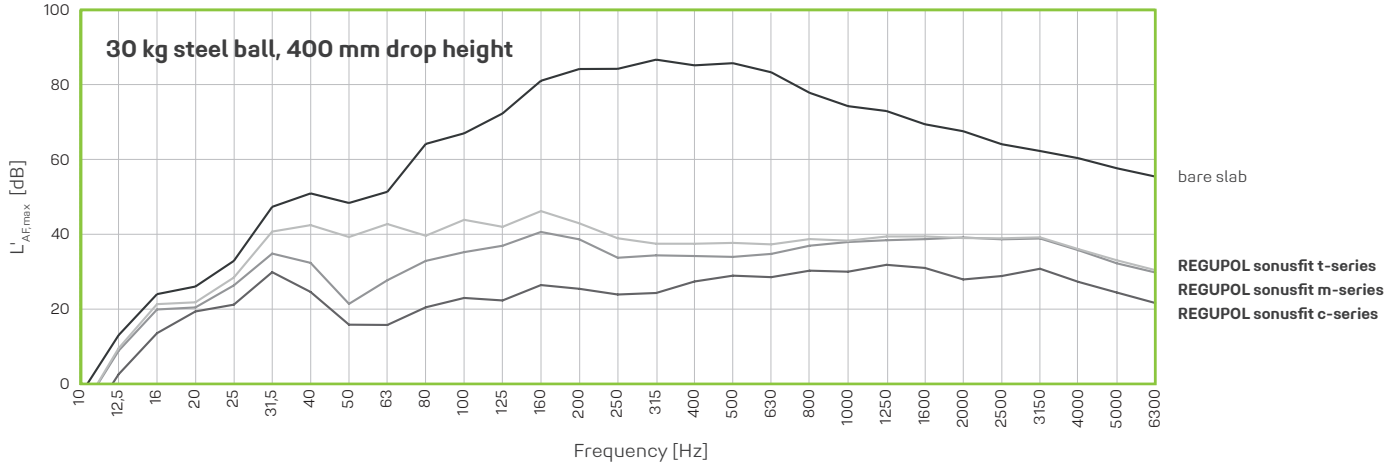
This is achieved by combining dampening elastomers with **REGUPOL everroll**, a long-proven surface system for the fitness sector.

The energy impact into the screed from dropping barbells or dumbbells is considerably reduced by the deformation of the **REGUPOL sonusfit** system, while at the same time the floor allows optimal resilience for a wide range of exercises.

REGUPOL sonusfit at a glance

- Integrated fitness floor covering for gyms
- Perfect combination of acoustics and sport functionality
- Flexible design for various sound protection levels
- For retrofitting and new buildings
- Customized solutions possible

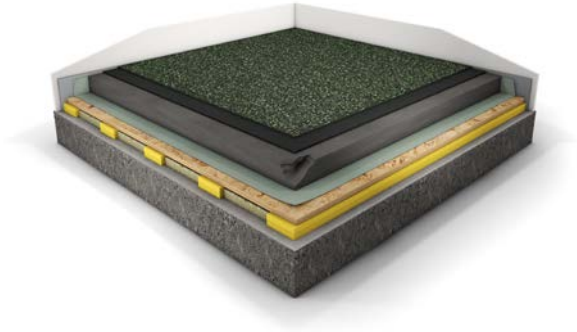
REGUPOL sonusfit compared



REGUPOL sonusfit t-series
The **REGUPOL sonusfit t-series** is a product line consisting of prefabricated tiles, available in a great variety of thicknesses. **REGUPOL everroll** is already laminated onto the molded part. The underside of the product is adapted to ensure optimum deformation of the material when weights are dropped, resulting in high force reduction. **REGUPOL sonusfit t-series** can be laid loosely on the bare slab or on the screed. This doesn't only ensure easy installation, but also easy removability.

REGUPOL sonusfit m-series
The **REGUPOL sonusfit m-series** includes multilayer systems. Elastomers with different dampening and spring properties are combined. **REGUPOL everroll** is furthermore used as top layer. This combination reduces the introduced structure-borne noise effectively, even without the use of a mass-spring system. Depending on the system, various stiffening layers are integrated in order to avoid impairing the stability of the athletes. The individual layers are laid on the bare floor or screed and glued together.

REGUPOL sonusfit c-series
The **REGUPOL sonusfit c-series** provides maximum flexibility regarding the acoustical design of the floor construction. The solutions can individually be adapted to the building project and therefore the system floors can be matched to the desired target frequency. Both mass-spring systems with wet screed and dry screed can be implemented. This reflects the most effective method of isolating low-frequency excitation in gyms. In combination with the corresponding **REGUPOL sonusfit t-series** or **m-series** surface systems, the energy which the elastically supported screed has to bear is reduced, thus protecting the screed. At the same time, of course, the sports related properties of the flooring are being sustained.



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