



SOUND AND NOISE

insulation



25 years

of successful noise
elimination
and acoustics
improvement

400
employees

**2 acoustic
chambers**

that have
no analogues
in Russia and the CIS

14 offices

in Russia
and the CIS,
Europe

more than

10 000
completed
projects

approximately

20 patents

for inventions
and utility models

THE ISSUES OF SOUND VIBRATION INSULATION CAN BE DIVIDED INTO THE FOLLOWING SUB-TASKS:

1 IDENTIFY THE NOISE TYPE

AIRBORNE NOISE

Noise that arises in the air.
Barking dogs, switched on TV,
speech, crying children and others.

IMPACT NOISE

Noise from stomping, falling objects,
hitting the surface.

STRUCTURAL NOISE

Noise from a perforator, an elevator,
and other engineering equipment,
which is transmitted through the
building's structural elements and
utilities in the form of vibrations.



2

IDENTIFY THE NOISE INTENSITY

In conversations, two words that are close in meaning are often used: "sound" and "noise". Sound is a physical phenomenon caused by the oscillatory motion of the particles of the medium. Sound oscillations have a certain amplitude and frequency. So, a human is able to hear sounds varying in amplitude by tens of millions of times.

As for noise, it is a chaotic, discordant mixture of sounds that negatively affects the nervous system.

The frequencies perceived by our ear range from 16 to 20,000 Hz. Nature has granted us with the ability to hear both thunder and the slightest whisper of leaves. To evaluate such different sounds, the sound intensity level indicator L and special units of measurement - decibels (dB) are adopted.









The physiological characteristic of sound is its loudness. A decrease in the sound intensity level L by 10 dB is subjectively felt as a decrease in volume by 2 times, and by 5 dB - as a decrease in volume by a third.

The human body reacts to noise of different levels and frequency composition differently.

The reaction is individual in the range of 35-60 dBA, (kind of "interferes - does not interfere").

Noise of 70-90 dBA levels lead to nervous disorder in case prolonged exposure, and with L of more than 100 dBA - to a decrement in hearing acuity of various degrees of severity, up to the development of complete deafness.

NOISE LEVELS

30 dB	Soft		The whisper, the ticking of the clock. Permissible maximum according to the standards for residential premises at night, from 11 p.m. to 7 a.m.
40 dB	Rather audible		Normal speech. Standard for residential premises during the day, from 7 a.m. to 11 p.m.
55 dB	Distinctively audible		Conversation at a distance of 1 m. Upper standard for Class A office space
65 dB	Loudly		Loud conversation at a distance of 1 m
75 dB	Loudly		Scream, children's laughter at a distance of 1 m
90 dB	Very loudly		Loud scream, home cinema
105 dB	Extremely loudly		Orchestra, thunder, nightclub
130 dB	Pain threshold		Airplane at the start

*dBA - acoustic decibel. A unit of measurement of noise with respect to the perception of sound by a human.

3 IDENTIFY PRIORITY FACTORS

When dealing with noise, you need to remember that absolute soundproofing does not exist. Even after applying the most efficient and expensive soundproofing solutions, noise can remain.

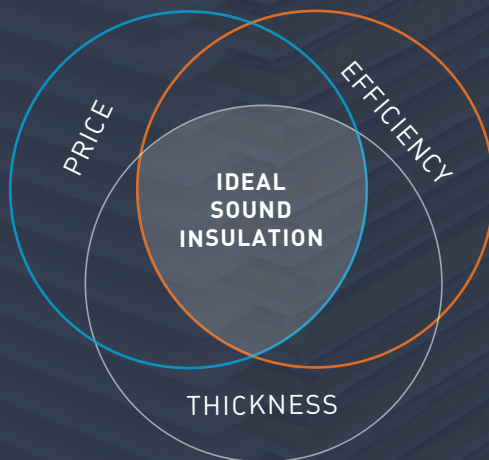
Soundproofing should be considered as additional protection. The result will largely depend on the sound source volume level. The soundproofing structure can completely neutralize the sound at a certain volume, but the noise will reappear if the volume of the sound source is increased.

However, our experience shows that 50% of all calls for soundproofing services are caused by medium-intensity noise, so the problem can be completely eliminated.

The remaining 45% are problems with sounds of increased volume, and even in these cases, it is possible to significantly reduce annoying noises.

And only 5% of cases fail to find a solution to the problem.

Therefore, when choosing materials and solutions, we recommend relying on 3 factors:





ADDITIONAL BENEFITS

The main function of soundproofing materials and structures is to reduce the noise level in the room. But, at the same time, the use of certain materials can significantly reduce costs at other stages of refurbishment.

1 - LEVELING OF WALLS, FLOOR AND CEILING

The process of surfaces leveling is not only expensive, but also a time-consuming stage of refurbishment and construction work.

We have developed special solutions for uneven surfaces: ZIPS-Z4 for walls and ceilings, Shumoplast - for floors. Our materials allow to level small surface differences and perform installation without additional preparation, which significantly reduces the time of refurbishment work.

In the case when the wall or floor has large height differences, we recommend framed soundproofing structures. These are the structures with a distance from the existing wall, and the finish layer - gypsum board - is a good base for any decorative coatings.

2 - UTILITY LAYING

Soundproofing structures are ideal for laying utilities, but of course it is important to observe the main rule - utilities should not be rigidly fixed and touch elements of the structure.

3 - THERMAL INSULATION

Some materials that make up soundproofing structures have a heat-insulating effect, for example, by installing the "Soundproofing floor using Shumanet-Thermo" structure in your apartment, you provide yourself with thermal insulation of the floor, and silence for your neighbors.

4 - WATERPROOFING

The issue of waterproofing in the bathroom and WC is particularly topical, but waterproofing in other rooms also would do well. Moreover, our range of soundproofing materials includes Shumanet-100 Hydro and Combi. These are bitumen-based roll materials that work great against impact noise and provide reliable waterproofing. Provided simple installation rules are observed.



FRAMELESS SOUND INSULATION

ZIPS-panels

- the thinnest really working sound insulation
- additional protection against airborne noise up to 18 dB!
- simple and quick installation
- proven material
- manufacturer engineering support



WHEN APPLIED?

If you need maximum effect and smallest thickness simultaneously.

— Frameless soundproofing structures are attached directly to the load-bearing surface without the use of any frame.

— They are installed very quickly and significantly reduce the likelihood of installation errors affecting noise protection characteristics.

FRAME SOUND INSULATION

frame soundproofing of walls, ceilings and partitions

- the most effective solution for sound insulation
- align the surface of the wall
- no restrictions on the requirements for the surface
- allow you to hide communications

WHEN APPLIED?

If no chance to use frameless construction.

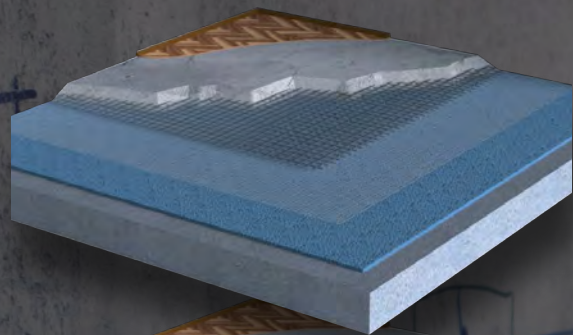
— Need to fix via vibration suspensions directly to the surface to be isolated.

— Frame structures are more complex for installing than frameless ones. They require longer time to install and careful joining of all elements in full compliance with technology.



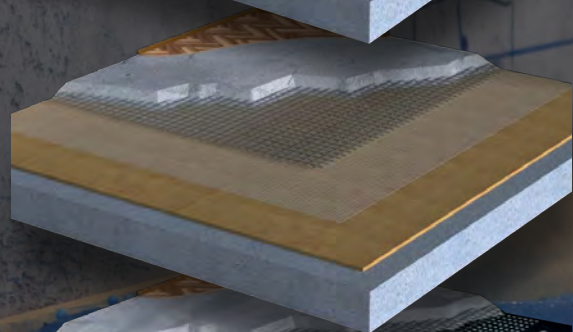
FLOOR SOUNDPROOFING

solutions for sound insulation
of the floor



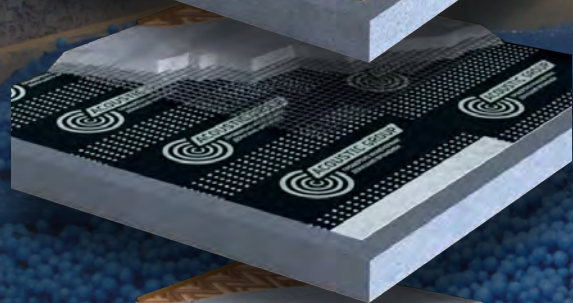
Shumoplast®

- $\Delta L_{n,w} = 28 \text{ dB}$
- $\Delta R_w = 7-9 \text{ dB}^*$



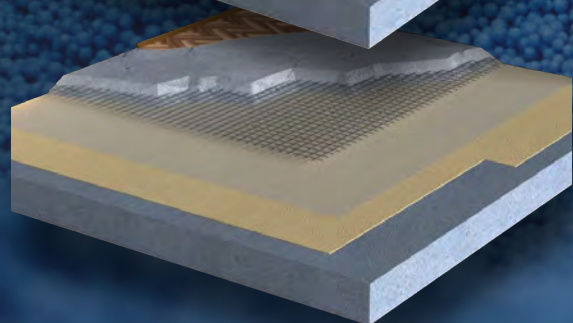
Shumostop®

- $\Delta L_{n,w} = 38-43 \text{ dB}^*$
- $\Delta R_w = 8-13 \text{ dB}^*$



Shumanet 100Hydro®

- $\Delta L_{n,w} = 24 \text{ dB}^*$



Akuflex®

- $\Delta L_{n,w} = 24 \text{ dB}^*$



*according to the different material thickness and final coating

VIBRATION ISOLATION

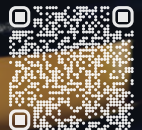
the leading material for vibration isolation

Isotop®

- quieter equipment thanks to efficient vibration isolation
- time and cost savings during design, procurement and installation
- possible spot mounting and control of spring condition
- polyurethane filler is protected by spring coils against damage
- high resistance to corrosion

Sylomer®

- high elasticity, long service life
- very low amplitude dependence
- wide range for optimum system design
- ability to provide customer-specific modifications





ACCESSORIES

for sound insulation



soundproofing
socket box



sound insulation tape



vibroacoustic sealant



vibration insulation
suspension



vibration insulation
profile



acoustic seam





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