

Noise in the office

Open offices have the advantage that their users can communicate directly with each other and that they experience a sense of openness. The big disadvantage of this type of layout is that this contact can disturb other workers in the room. Communication is a good thing, but it may affect other people's performance.

A survey among almost 1,000 office employees in Germany showed that half of the interviewed staff experienced discomfort from colleague chatter and other sound-producing sources.

Bad acoustics cause stress, make it harder to concentrate and affect performance and health. Common measures to improve acoustics include the placing of partition walls or screens, exchanging hard flooring with soft carpeting, applying sound-absorbing wall coverings and the hanging of so-called sound catchers from the ceiling. Recently, it has been a trend for furniture to be finished with sound-absorbing materials. Below is a list of the various acoustic solutions and the pros and cons of each:

Wall solutions: partition walls and separating screens/cabins

PROS:

- + improve the general room acoustics
- + reduce the transfer of direct sound between source and ear
- + reduce the sound level caused by sources from the outside
- + you can use many different materials as sound absorber: gypsum, chipboard, soft-board, various textiles, etc.
- + these solutions can also be used as

room divider, for instance to separate workstations from each other

CONS:

- not suitable as sole solution
- they do not reduce sound level that occurs from the inside of the barrier

Ceiling solutions

a) a complete solution for the entire ceiling

PROS:

- + because of the large surface, this solution adds enormously to optimal room acoustics
- + is the most effective solution for reducing the total volume of sound production

CONS:

- relatively high costs and drastic measure with a renovation or implementation after construction
- little flexibility to make changes to the geography of the building or with a move
- an optimal sound reduction can only be achieved by placing partition walls

b) ceiling sails

PROS:

- + can be applied separately or combined with other solutions as an additional measure to a complete solution
- + various possibilities for specific spatial demands





- + can also be combined with lighting solutions
- + makes it easier to apply specific accessories
- + dampens sounds, filtering echoing and noise, thereby improving clarity of the spoken word

Sound absorbing flooring, ceiling and wall finish

Sound disperses in all three directions. Therefore, from the viewpoint of room acoustics, it is advisable to provide a room with sound absorbing facilities in all facets.

Flooring

PROS:

- + contributes to a reduction of noise between rooms
- + reduces the total sound production in a room
- + textile flooring (carpet and carpet tiles) has a big advantage in that they dampen sound and reduce the noise caused by people walking.

CONS:

- the absorption by flooring has a minimal effect towards the total reduction of sound
- hard flooring (tiles, parquet, laminate and such) hardly influences sound damping
- only effective in the middle and high frequency range because of the scant thickness of some types of flooring
- not suitable as a sole solution

Decoration elements with sound absorbing surfaces

PROS:

- + application is flexible, if no structural measures must be taken
- + act as sound screens, reducing the direct transfer of sounds
- + especially suited for application in open offices and combination offices
- + since the screens can be placed directly at the source of the sound, transfer is avoided

CONS:

- furniture does not add constructively to improved acoustics
- only an extra measure when solutions for flooring, walls and ceiling prove to be insufficient

Cabinets and shelves

- + sound cannot pass through them so they are acoustically effective, even at low frequencies
- + effectiveness is comparable to ceiling solutions
- + specific contours in combination with sound absorbing materials, like jute, cause a reduction in reverberation in the entire frequency range
- + sound absorbing dropped ceilings create a reduction of sound dispersion

Chairs

- + effective for large open spaces like halls
- + finished with sound absorbing materia

Paintings and such

- + add to the optimization of the room acoustics and can very well be applied as decorative addition to the room

Ceiling elements

- + original solution to acoustic problems
- + flexible because of the simple construction and mounting
- + the element consists of sound absorbing melamine foam, finished with a special acoustic fabric

Equipment emitting little noise

- + there are quality marks that also provide data on the maximum sound production of the apparatus The Blue Angel qualification, for instance, guarantees a maximum sound level of 48 dB (A) in standby modus
- + apparatus in use may not produce more than 55 dB (A)
- + manufacturers are obliged to provide data on the sound production (in standby and in use modus) that are checked by recognized test laboratories
- + sound isolating mats or covers reduce the dispersion of sound by noisy printers and other equipment and machinery ■