

ECOPHON ACOUSTIC DESIGN WITH SCREENS



Ecophon[®]
SAINT-GOBAIN

A SOUND EFFECT ON PEOPLE

IN THIS FOLDER
YOU WILL FIND
GUIDANCE ON
HOW TO CREATE
A SOUND OFFICE
WITH AKUSTO
SCREEN.



The paradox of open offices

The most cited reasons for designing open offices are to facilitate collaboration, idea generation and community building. In other words: verbal communication. At the same time one of the biggest issues of open offices is distractions due to speech. In other words, once again: verbal communication. Paradoxically, the very reason for open offices also seems to be its biggest problem.

This might appear to be an irreconcilable paradox with this type of workspace, but in reality it is all about finesse in acoustic design. The trick is to reduce sound propagation through the space.

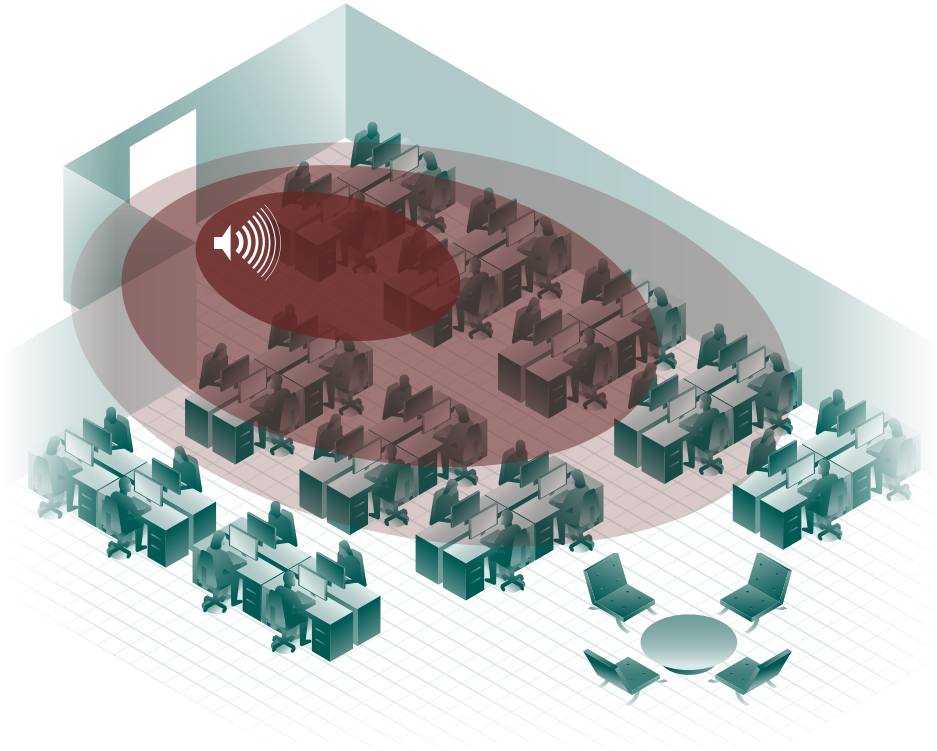
SOUND PROPAGATION

Really, what we need to consider is the acoustic privacy of the office. In good acoustic conditions workers are able to conduct a conversation at close range without disturbing their colleagues in the surrounding office space.

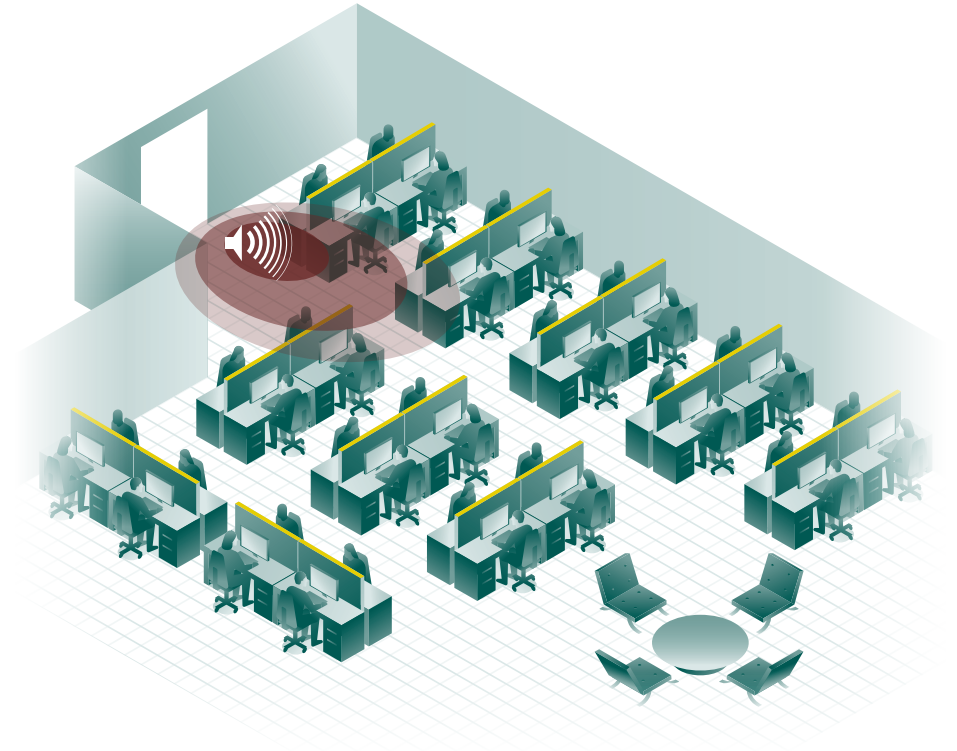
Acoustic privacy is achieved by decreasing speech propagation through the installation of acoustic materials. Used in conjunction with a class A sound-absorbing ceiling and wall panels, high-quality acoustic screens can lower sound propagation significantly and improve the acoustic privacy of the office.



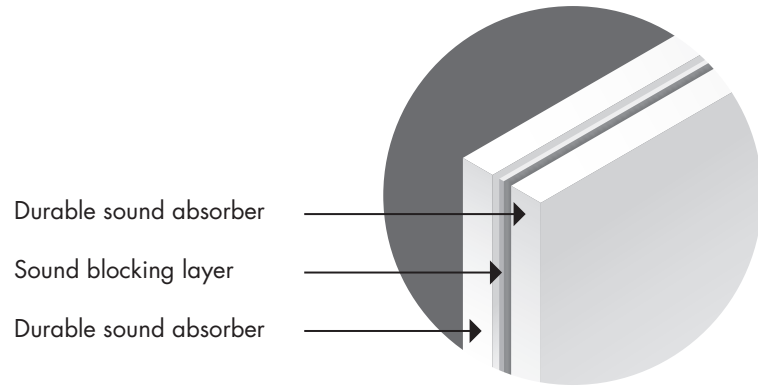
NO SCREENS



WITH SCREENS



INSIDE AKUSTO SCREEN



Akusto Screen combines two important acoustic qualities to reduce sound propagation as much as possible. Firstly, it is assembled with a core that impedes sound travelling through the screen.

Secondly, durable absorbers are placed on both sides of Akusto Screen. Instead of being reflected back into the space, sound waves that hit the screens are absorbed, which lessens sound propagation even further.

Because of its highly sound-absorbing surface, Akusto Screen also reduces reverberation time and noise levels, thus contributing to bettering acoustic comfort in general.



ACOUSTIC DESIGN WITH AKUSTO SCREEN



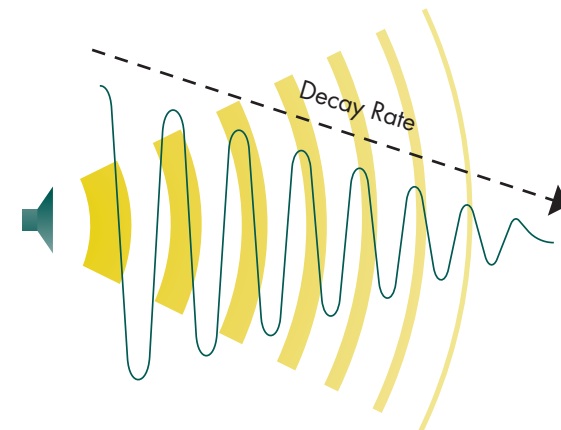
Ideally, acoustic screens should be placed close to workstations. This allows them to both shield the individual worker from incoming noise and absorb sound generated from the workstation. For the best effect one acoustic screen should be installed for every two workstations.

Acoustic screens can also be placed close to other noise sources, such as machines, to lessen their distracting effect through the office environment. The closer to the noise source Akusto Screen is placed the better.

REDUCING SOUND PROPAGATION

When it comes to technical acoustic evaluation the most important acoustic descriptor to consider in relation to screens in open offices is $D_{2,s}$ which is a measure of the attenuation of A-weighted sound pressure of speech in decibels. It specifies the reduction in sound pressure when the distance to the source is doubled. Therefore the higher $D_{2,s}$ value in an office space, the better.

According to ISO 22955, an open office should preferably have a $D_{2,s}$ that exceeds 6 dB for most activities, while 7 dB or higher is recommended for collaborative spaces.



THE EFFECT OF SCREENS

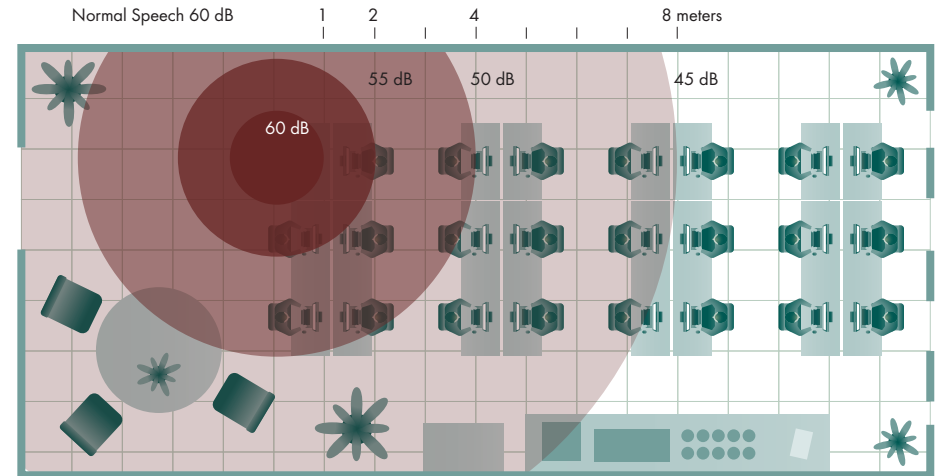
Even a small change in $D_{2,s}$ can affect the sound environment in an office. Let's consider an example: a standard open office space of about 187 m², with 24 workstations and a class B acoustic ceiling suspended at 2.6 meters. If we then imagine a noise level of 46 dB, we can presume that speech will be much less disturbing below this level. Therefore, 46 dB is in this case our target value for dampening of speech to improve acoustic privacy.

Installing Akusto Screens for every two workstations could realistically raise the $D_{2,s}$ from about 5 to 7 dB in this example.

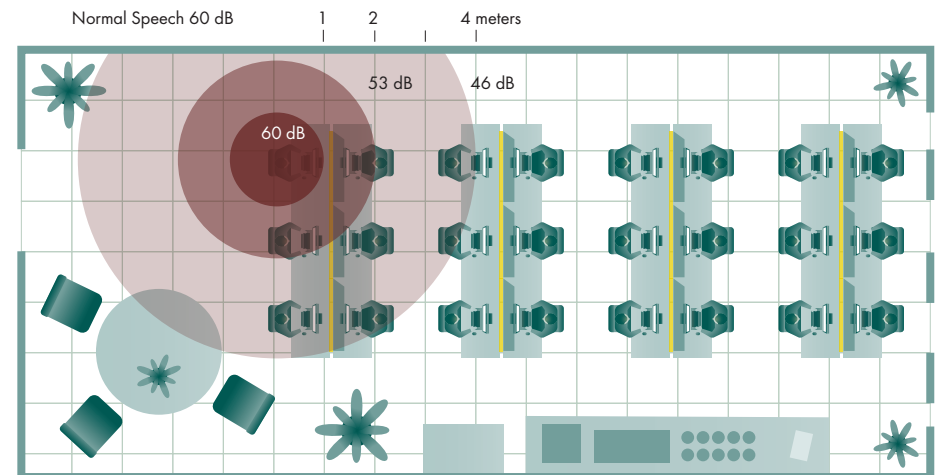
A 2 dB difference in $D_{2,s}$ might not seem like a lot, but when you consider how this difference adds up per doubling of distance, that is actually a noteworthy change. As illustrated on the next page, this would mean that about 7 additional office users would not be disturbed by the speech from the corner workstations.

Studies show that the effect of acoustic screens is greatly improved when combined with sound-absorbing ceilings. In fact, a class A sound-absorbing ceiling should be the first order of business when considering acoustic conditions in any office. With a class A sound-absorbing ceiling and wall absorbers installed, acoustic screens can almost double the dampening of speech measured in $D_{2,s}$ – even under otherwise suboptimal acoustic conditions.

NO SCREENS



WITH SCREENS



Pedagogical illustration – Not representative of actual sound propagation dynamics

Ecophon is the leading supplier of solutions for indoor acoustic environments that improve working performance, wellbeing and quality of life.

The principles guiding our work are grounded in our Swedish heritage, where a human approach and a common responsibility for people's lives and future challenges come naturally. Ecophon is part of the Saint-Gobain Group, a world leader in sustainable habitat solutions that balance the need for comfort and cost-effectiveness with energy efficiency and environmental responsibility.
<https://ecophon.com/akusto-screen>



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