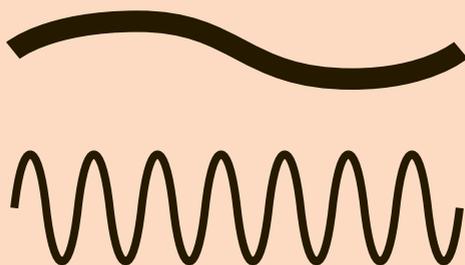


abstracta

The Acoustics Guide

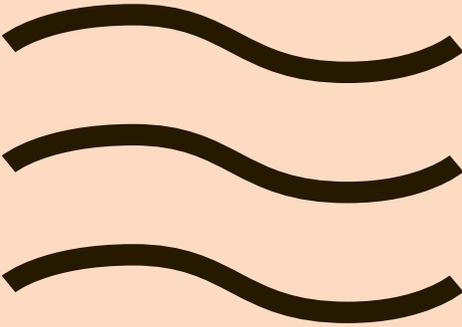


1 What is acoustics?

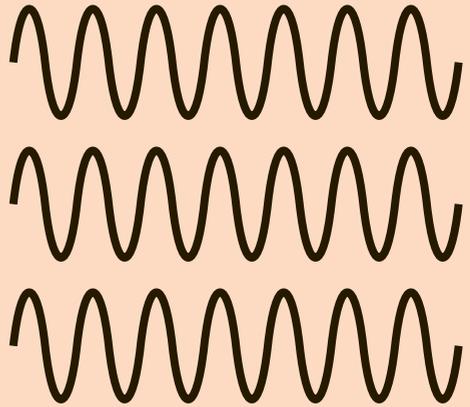
**Acoustics is the science of audible sound.
The word acoustics derives from the
Greek "to make oneself heard".**

What is sound?

Sound is pressure waves in the air. The ear interprets the variations in air pressure as sound. The sounds have different characteristics because of the difference in wavelength – they are defined as either short or long.



Long sound waves
Dark tones



Short sound waves
Light tones

Reverberant time

Reverberant time is one of the things one talks about when explaining the acoustics of a room. It is used to describe the "echo effect" of a room. Smooth bare walls, floors, ceilings or other similar surfaces reflect the sound waves, and the sound bounces right back, causing a diffuse echo.

Sound is measured in decibel

140 dB



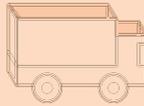
Pain threshold

125 dB



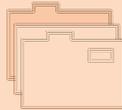
Commercial jet

90 dB



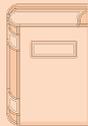
Heavy vehicle

65 dB



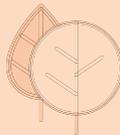
Office

35 dB



Library

15 dB



Deciduous forest

2

**The acoustic
environment
is important**

Every day, we are surrounded by sound. It can be the sound of fans, talking colleagues, ringtones, general scraping noises, the echoes of foot-steps or background music. In an office, the acoustic design of the room affects the staffs health and productivity. If we are subjected to a lot of noise, we get stressed out and fatigued.

A bad acoustic environment in an office is often caused by a reverberant time that is too long in relation to the size and functionality of the room. The same problem can be found in a number of other environments as well, such as schools, restaurants, meeting halls and so on, even if the design can vary slightly between the different environments.

The current trend with big open spaces, straight parallel walls and glass surfaces creates unpleasant sound reflections. In these cases, it is important to "help" these surfaces in the best way possible to create a pleasant acoustic environment in which the staff can stay both creative and focused.

3

Acoustics terminology

To create a good acoustic environment, it is crucial to understand these three terms within the field of acoustics:



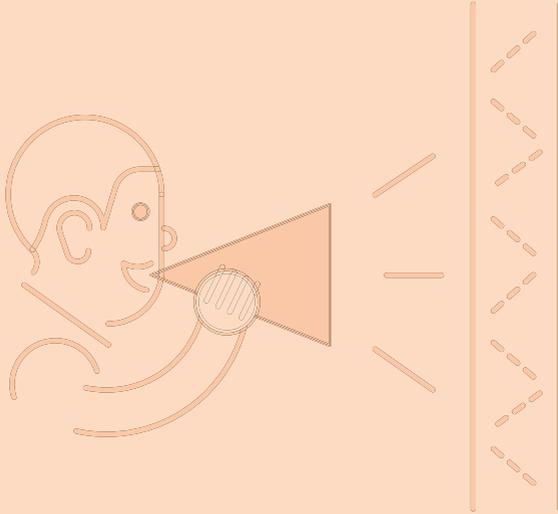
Absorption



Diffusion

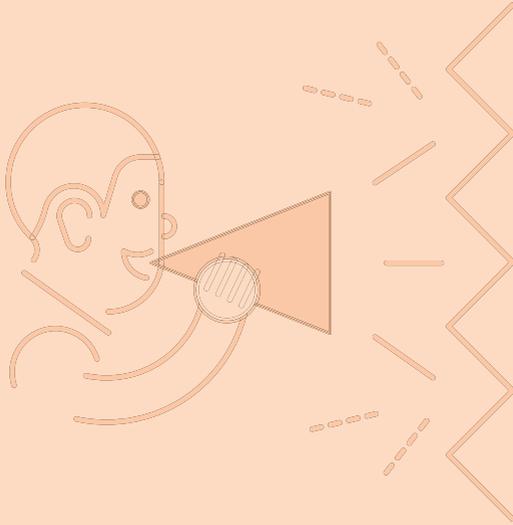


Attenuation



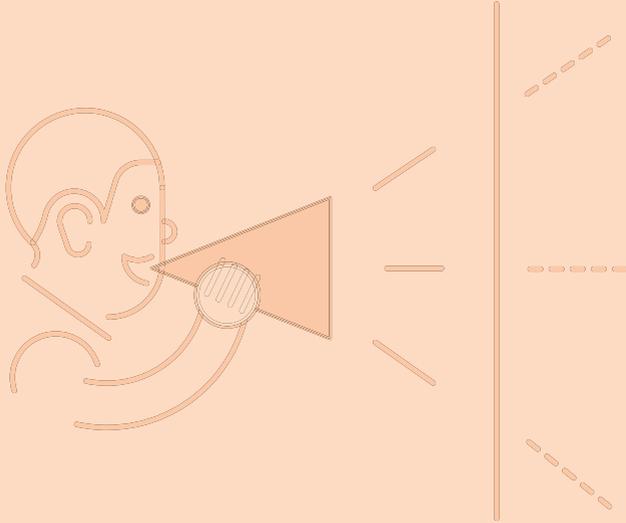
Absorption

Absorption means that the sound that hits a surface gets absorbed and transformed into heat. The sound energy is very small however, so it is impossible to detect the heat on the surface! A clothed acoustic screen absorbs sound – it “eats it up” – thus creating a pleasant acoustic environment.



Diffusion

Diffusion means that a sound hitting a surface “shatters”, which helps one avoid unpleasant sound reflections – in other words echoes. Using diffusion is often a good compliment to absorption in the process of creating a good acoustic environment.



Attenuation

Attenuation means that an object (for instance, a screen) shields off and lessens the sound level from one side of the object to the other. A good screen can attenuate the sound level with 10–15 dB between two work stations. Compare this to a wall, which normally attenuate 35 dB or more.

4

Acoustics assortment range

Our acoustics assortment range will be described using the following symbols:





Floor screens

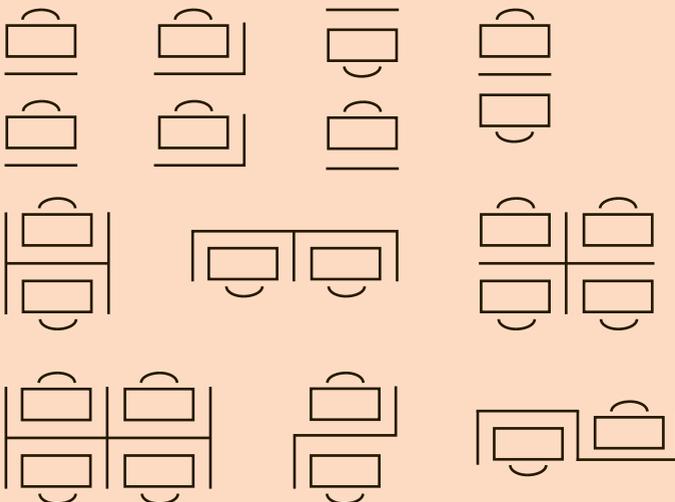
Classic floor screens creates spatiality and solves acoustical problems. Our floor screens can be assembled into systems for an easy way to create a better acoustic environment at the work place. Screens are the perfect product for open of-
 office landscapes – with these you have the possibility to create smaller, separated work spaces.



Table screens

These work in the same way as floor screens, but are mounted to desks instead of the floor. Table screens are smaller than floor screens, and because of this they are not as efficient as floor screens. Depending on the situation though, table screens can be a great solution.

Possible combinations for floor- and table screens





Hanging

These absorbent work well as a free hanging solution on their own or as a compliment to other acoustic products. In situations in which traditional screens are not the optimal solution, either because of lack of space or other reasons, these hanging versions work excellently.



Wall mounted

Wall mounted absorbent are often a suitable option for environments in which traditional screens does not work. There are also times in which the acoustics needs a lot of work, and in those situations it is preferable to combine for instance floor screens with wall mounted absorbent. They can either be displayed almost as works of art, or they can be adapted to fit discretely into the background.



Free standing

Free standing screens create flexibility and comes in a great variety of exciting designs. Suitable for most environments.



Ceilings

Create a room within a room with an absorbent ceiling. Excellent for light wells and other spaces with extremely high ceilings. Invokes calm in big open spaces.

5

Room environments

**Different environments require different
types of acoustic products.**

Cafeteria/dining area



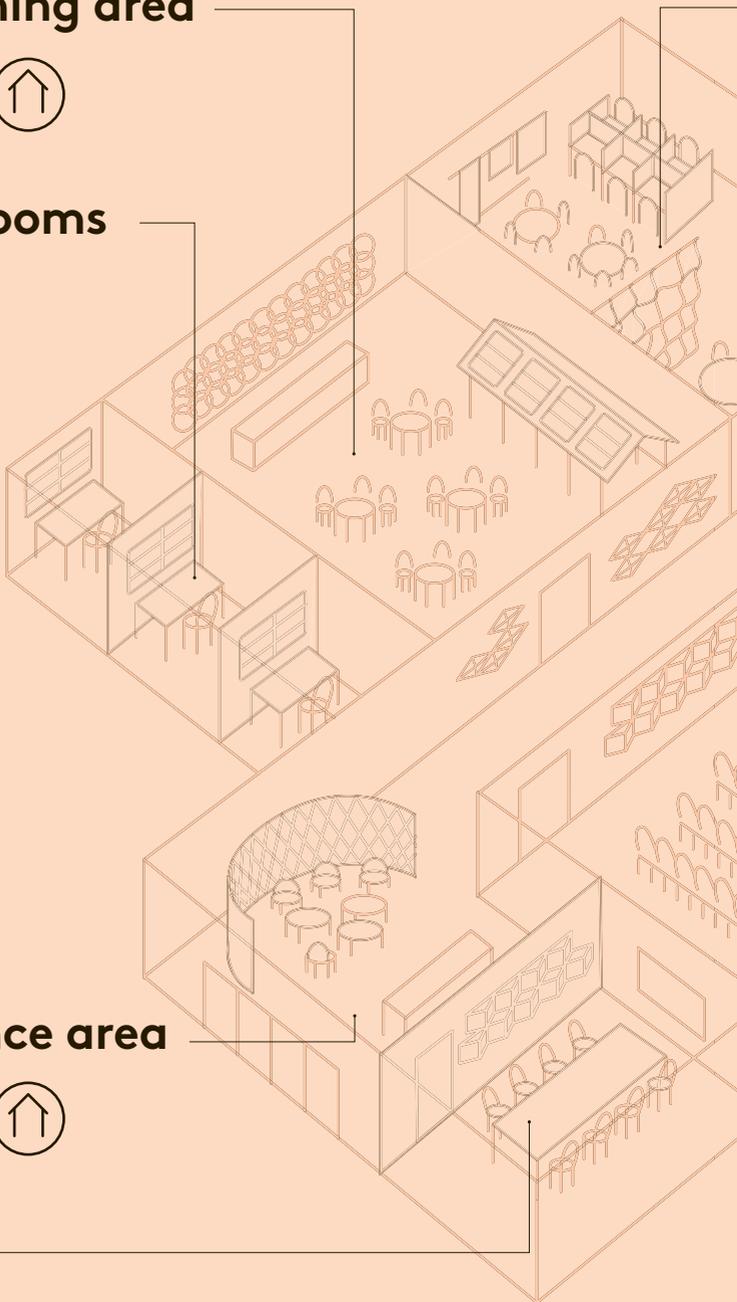
Small silent rooms



Lobby/entrance area



Conference



Activity based room



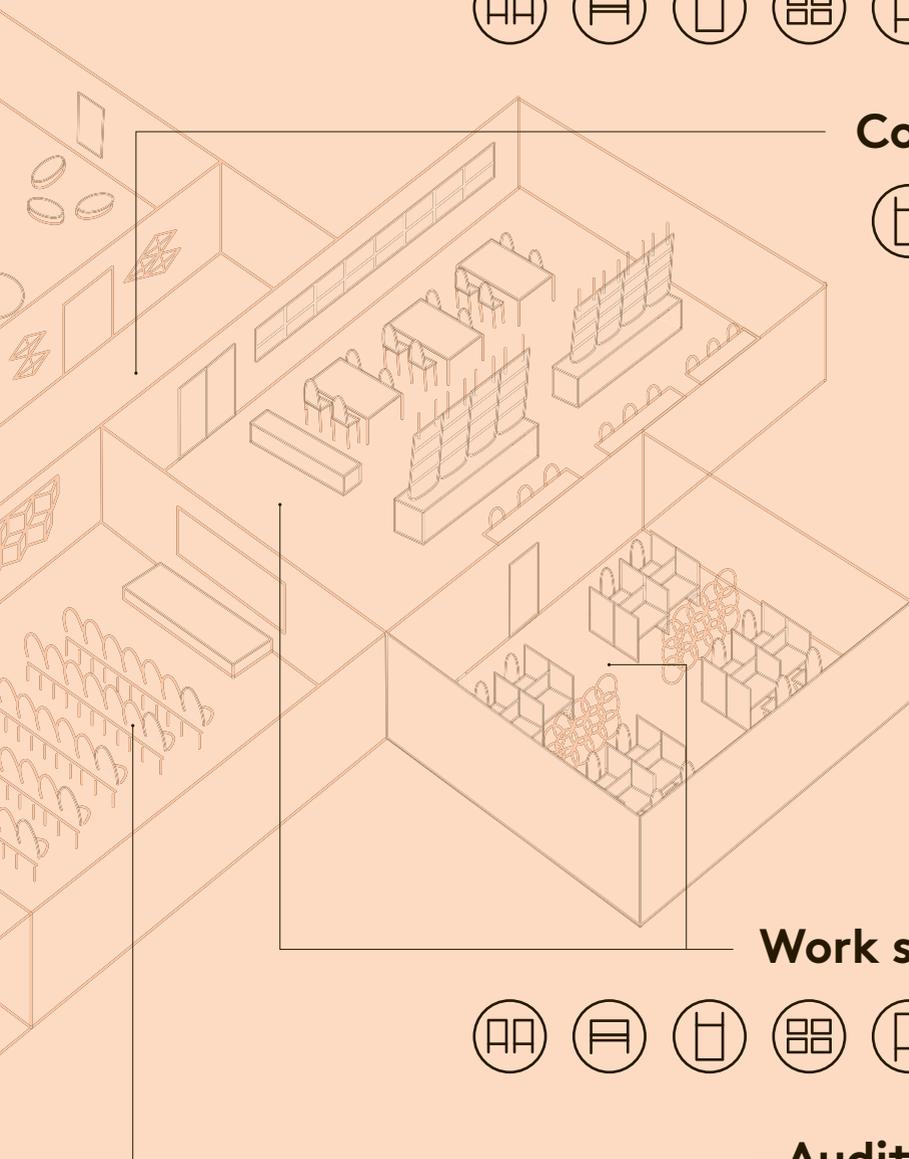
Corridor



Work spaces



Auditorium



All of Abstracta's products are listed at acousticfacts.com

Acousticfacts.com is an initiative to raise the quality with which interior design companies account for acoustic properties on their products, so that a correct and factual comparison between two different products can be done directly. This is a guarantee for you as a customer that all technical data are correct and they fulfil international, European and Swedish standards. If you want to know more about the acoustic data of our products, please visit www.acousticfacts.com.

We collaborate with SP regarding tests on stability, durability, emissions, fire safety and sound.



The register below lists Abstracta's products, their acoustic properties and in which versions they are available.

								
		Plaid				●	●	●
		Alumi	●	●			●	
		Doremi	●				●	
		Softline	●	●			●	
			Triline	●			●	
		Triline wall					●	
		Bits wall					●	
		Soneo wall					●	
		Airflake closed					●	
		Airflake open					●	
		Aircone					●	
		Airwave					●	