

ACOUSTICS

Acoustic screens between workplaces in open landscapes

Open landscapes and big rooms are common in today's modern offices. In such environments the sound level must be optimized. The sound must be experienced as right and positive by the personnel.

Following demands should be taken into consideration by planning and furnishing the office:

1. There shall not be any informative sound that disturbs ones concentration.
2. It must be easy to have a conversation on the phone or with people in the "own room".
3. The positive values of the open landscape shall be strengthened.

Sound absorption and Sound reduction.

With sound absorption we mean different materials ability to "eat" sound. It is the floor, the ceiling, the screens etc. that lowers the sound level to the right level.

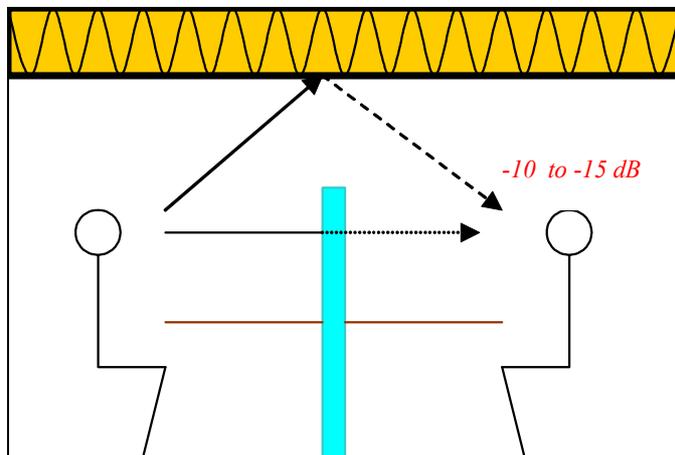
With sound reduction we mean the sound isolation between two workplaces.

Sound reduction

With a good acoustic ceiling and suitable office screens which are well weighed placed between workplaces, one can meet the demands of sound reduction. Screens that will be placed between workplaces in an open landscape should achieve a sound reduction of 10 to 15 dB.

To get the best effect, following must be taken into consideration:

- The screen must be tight. No gap between the individual screens and a minimum of gap between the screen and the floor.
- The screen shall have sound absorbing material on both sides at the height of normal speech to minimize the sound reflection from both sides of the screen.
- The screen must be high enough. 1300 – 1800 mm at a normal ceiling height.
- At a low ceiling height, a good ceiling absorption is required.



Picture. Principle of an office screen

Choooses of sound reducing screens?

For the best sound reduction between workplaces in an open landscape Glimakra recommends following ranges with sound absorbing fabric fillings:

Glimakra Multimix

Example: $h=1700$ mm, reduction according to ISO 10053, $\Delta L_{s,w} = 13$ dB

Glimakra Europo

Example: $h=1860$ mm, reduction according to ISO 10053, $\Delta L_{s,w} = 14$ dB

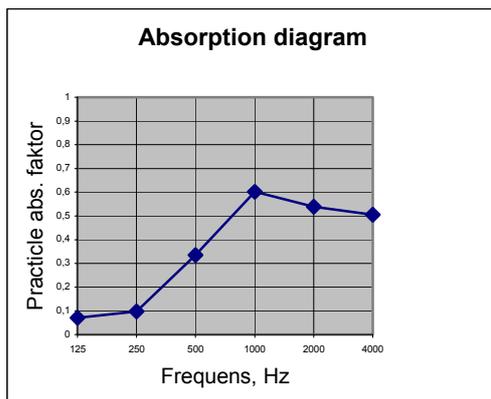
Sound absorption

Glimakra has many screen ranges that can be designed to fulfil the requirements of the demanded sound absorption.

The best effect is received with following Screens:

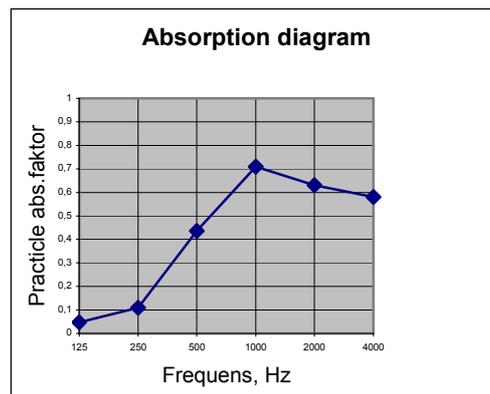
Glimakra Multimix
Glimakra Europo
Glimakra Tema/Flexa

The absorption of the screens is reported below.



Glimakra Multimix

Practicle abs. faktor α_p acc. SS-EN ISO 11654



Glimakra Tema/Flexa and Europo

Practicle abs. faktor α_p acc. SS-EN ISO 11654

By calculation of the absorption surface (which is used by calculation of the resonance in a room) the total surface (m²) of both sides of the screens, including wooden frames, shall be multiplied with the absorption factor in the diagram.

The screens can be delivered with a combination of sound absorbing (Fabric on sound absorbing filling) and sound reflecting (Glass) surfaces. In these cases only the surface of the sound absorbing filling, including half of the surrounding frame, shall be included.

Finally

Sound level and sound reducing is depended on many different parts in the room. Ceiling, Floor and walls as fixed interiors of course. Screens, carpets, curtains and not at least plants as interior decoration are also very important.

To take all acoustic aspects into consideration in a specific project, one normally needs the knowledge of an acoustician.

What we describe above is how you can maximize the benefit of using screens to achieve sound absorbing and sound reduction.

Normally screens shall provide for many other needs as well.

T ex.:

- Beautify the room.
- Divide the room.
- Create privacy.
- Profile the company.
- Strengthen the learning organization.
- Make changes in organization easier.

The right screen creates a good working environment, an environment of wellbeing.
– If we feel good we will also do a better job.

You shall choose screens after your demands!

Measurements made by: Ingemansson Technology AB, Klas Hagberg