WHAT IS ACOUSTICS?

The science of sound and understanding how sound travels.

1 - WHY THE CONCERN?

Noise pollution is background sound that can be annoying, disruptive and sometimes harmful. It's something we experience everyday, for example, when we're walking along a main road or we're trying to place an order in a busy café. Often it's not sound that we strictly notice, but when we do it can lead to frustration pretty quickly, especially in the workplace.

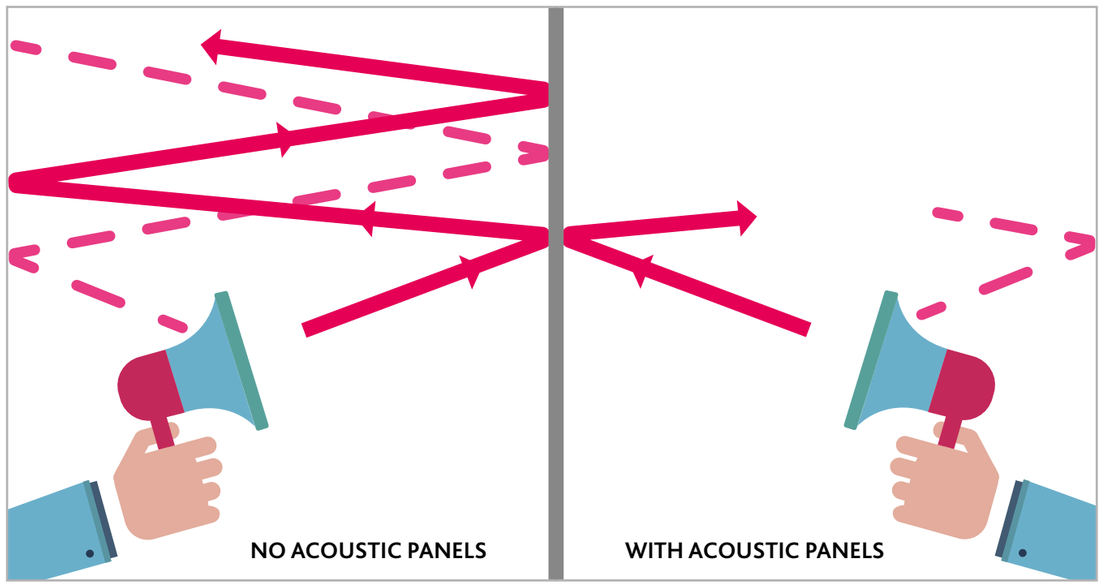
At work, noise pollution can be at its worst. The combination of telephones ringing, office equipment being used and multiple people talking, can interrupt your focus and leave you feeling tired and irritable. What's not helping acoustic matters is the rise in popularity of open plan offices and collaborative communal areas. This means fewer traditional walls and greater numbers of people working together in close proximity. All of these factors add up to more noise pollution in the workplace.

2 - THE SCIENCE

Noise pollution is reduced when reverberation time is kept as short as possible. Reverberation time is the time it takes for a sound to die down.

If someone were to stand in a room and shout, that sound will bounce off the hard wall and travel back into the room. If that person were to shout again whilst the first sound was still dying down, then both sounds would be heard at the same time but would be conflicting with each other.

However, if the wall were covered in acoustic wall tiles it would be a different story. Some of the first sound would be absorbed by the soft acoustic panels, so the time it takes to die down would be reduced. Therefore, by the time the person shouted for a second time and the second sound was produced, the first sound would have died, meaning the sounds wouldn't have to compete.



3 - THE RESEARCH

Extensive research has been carried out to prove that this constant noise is distracting, reduces concentration, affects health and well-being, and in turn affects productivity. After 10 years of research, The Centre for the Built Environment (CBE) have concluded that poor acoustics is the number one cause of dissatisfaction in the workplace. Not only that but it also affects employee performance more than any other factor.

They specifically found that sound distractions:

- Shift our attention so that our focus is reduced;
- Make it harder for us to concentrate which can increase our stress levels;
- Make us abandon a current task to deal with the interruption;
- Ruin our train of thought so that we have to regain concentration.

The Building Owners and Managers Association (BOMA) and the University of Maryland conducted a survey of 400 Business Managers. They found that a persons' productivity could increase by an estimated average of 26% if noise was kept under control.

Consider it this way… If your office had a leak it would be dealt with immediately. Just because you can't see and feel sound in the same way you can a water leak, doesn't mean it's not as, distracting to the workplace. Therefore, an investment in acoustic solutions can improve your efficiency and the well-being of your staff, as well as show you a return on your initial investment in just a matter of months.

4 - CASE STUDY

Here's an example of just how much background noise can affect your business.

Research commissioned by Brother proved that it takes an average of 15 minutes to regain your concentration after being distracted from a difficult task by unwanted noise.

Therefore, if a company employs 200 staff and each person is interrupted 5 times a day for 15 minutes, a 14% reduction in productivity is recorded over an average 8 hour working day.

Let's say that the average annual salary is £20,000 per person, then noise interruptions add up to a loss of £625,000, or in other words, 30 people's annual salary.

This shows that you're likely to see a return on your investment in a number of months, rather than years.

200 X £20,000 = £4,000,000
5 X 15 min = 1hr 15min
£20,000 / 250 days = £80pp pd (per person per day)
£80 / 8 hours = £10.00 ph
1HR 15 mins = £12.50 pp pd (per person per day)
£12.50 X 250 = £3,125 pp py (per person per year)
£3,125 X 200 = £625,000

£625,000 LOSS PER YEAR

5 - THE SOLUTION

A number of different products can be used to help achieve acoustic comfort like sound absorbing surfaces such as, acoustic ceilings, chairs, screens and floor finishes, along with acoustic barriers, partitions and masking systems.

Effective acoustics can be achieved using the **A**,**B**,**C** approach: Absorbing, Blocking and Covering.

Absorbing: Absorptive material + a high acoustical performance rating = an environment with better acoustics. Acoustic ceiling tiles and wall panels, carpeting, and soft furniture, will all help to absorb noise.

Blocking: Sound barriers interrupt sound paths. Sound absorbing screens can be placed strategically to block and prevent noise from travelling.

Covering: You can cover noise using a sound masking system so that noise cannot travel as far. Without masking, your voice can travel on average 40 feet, whereas this is reduced to just 20 feet with masking.

Correct application of the ABC rule can therefore lead to better acoustics in the workplace and a happier workforce who have improved concentration and are more productive.

6 - HELPFUL HINTS

People work in different ways and on different tasks and the office environment needs to be able to adjust to this. Certain things that are worth thinking about when you're in the office:

- **Try to keep conversations to a minimum when you're in an open plan workspace.**
- **Hold meetings in a room where you can close the doors.**
- **Don't put your phone on speaker when you're in an open plan office.**
- **Keep phone conversations short or take long phone calls in an enclosed space.**
- **Be considerate of your audience – not everyone around you will want to hear about your weekend.**
- **Try not to interrupt people if they look like they're concentrating on something, either come back later or drop them an email.**

E&EO. All items are subject to VAT, where applicable.