

## Noise Reduction

THINKFURNITURE™

New Broad Street House  
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## Introduction

When people think of ergonomics they often picture a nice chair or an adjustable workstation. When we consider ergonomics we take a more holistic view of the subject. Factors such as temperature /lighting even the effectiveness of the humble computer mouse can have a bearing on an individuals comfort and work performance.

Increasingly we live and work in environments where there is a constant level of noise ready and willing to either distract us from our work and make us feel more tense and less focused.

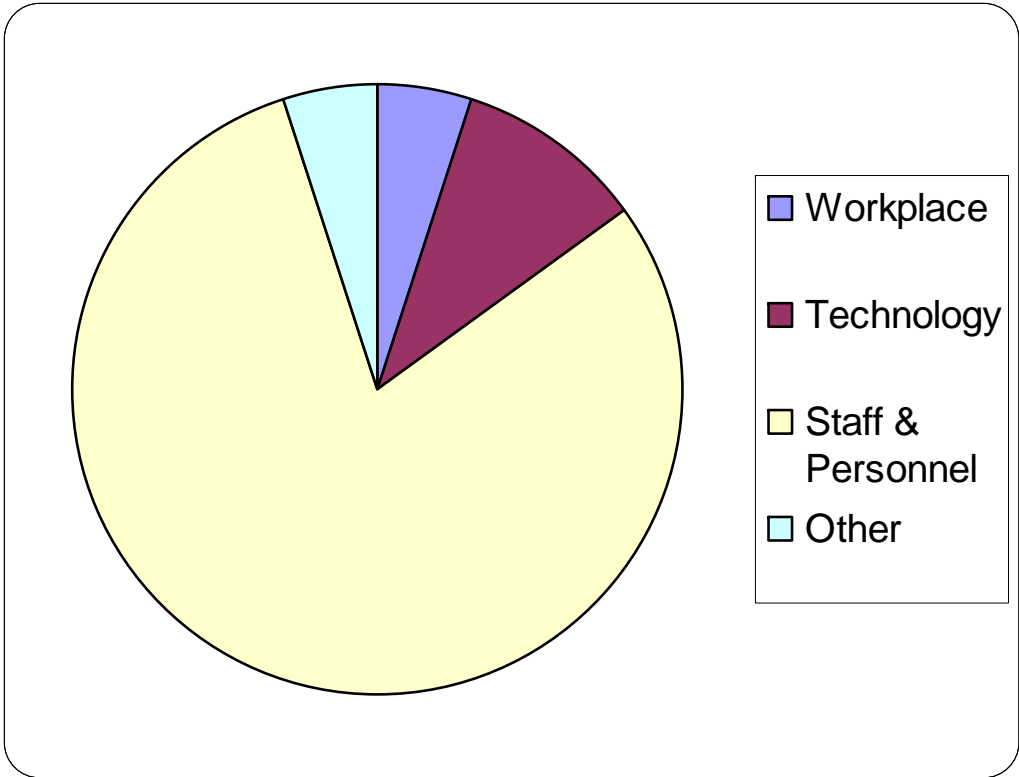
Thankfully there are also now more products and options to reduce noise levels within the workplace or at least bring them down to a tolerable level.

Before looking at the ways and means of reducing noise within the workplace it is important to establish the main cause and factors relating to noise and also what is the difference between sound and noise.

Finally aside from the human factor how can noise reduction positively impact on a companies business and also affect its bottom line ?

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Business Costs based over a Ten Year Period

Employee salaries/benefits approx 80%

Technology Costs approx 10 %

Workplace Costs approx 5 %

Other Costs account for remainder.

**Business Costs**

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## Business Costs

As the pie chart shows the majority of a companies costs over a ten year period relate to personnel and employee factors with the workplace actually coming in as a small percentage of the overall costs. That said as the work environment directly impacts on the effectiveness of employees and also retention of staff it is an area too important to ignore or be reticent about.

## What is noise ?

Without getting into the technical arena the best way to discriminate noise from sound is as follows.....

Firstly think of it in terms of how we perceive noise versus sound.....

Also what is the difference?

Sound can be measured and categorized by using decibel readings whereas noise cannot be measured and is much more subjective or personal to the individual.

An example of this could be someone working at their laptop in a breakout/café area they have their ipod on and are listening to music at say 70 decibels but still happily working, focussed on the work on their PC. The following day they are in the same place but with no ipod.....there is a person on a mobile phone sitting a few metres away talking about their holidays at around 30 decibels ,but the person on the pc cannot focus on their work and is being distracted by a conversation on the other side of the room.

This shows it is not always the level of sound that is the issue so much as the type of sound or noise that is being created.....

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## Managing Sound and Noise

Once we have established that all sound is not a bad thing but noise is more of a nuisance we can start to assess the types of issues present in the modern working environment. For one individual noise issues may stem from one of their colleagues who has a slightly louder voice and is prone to discuss football and his social diary when his colleagues are trying to focus on work. Another person's issues may be the constant noise from a hyperactive photocopier positioned near their workstation.

Once the nature of the issues are revealed you can start to assess the best way forward in reducing these noise issues from a selection of options as shown below.

Whilst all of these options are relevant there are some simple ways of reducing noise such as more plants in the office ,considering headset usage opposed to phones i.e. Bluetooth cordless headsets etc.... and careful planning of workstation positions.

If noise control requires a more active approach then the items listed will help both absorb noise (physically absorb sound vibrations and reduce the ) and diffuse noise (change the sound from a specific noise to a more muffled ,less specific sound/noise)

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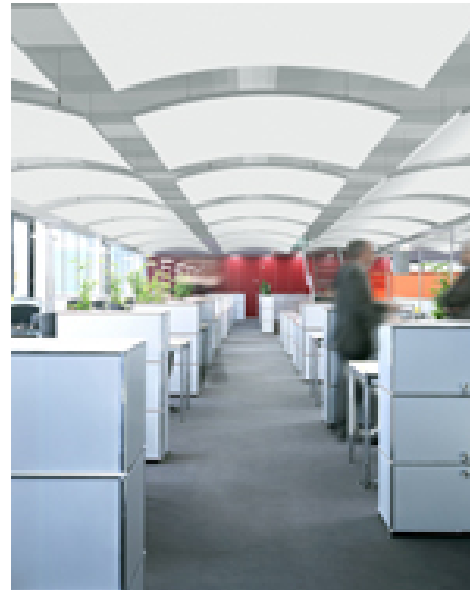


Rockfon develops intelligent ceiling solutions which actively addresses a number of important issues in modern buildings and renovation projects.

This system is more suitable for large open and auditorium spaces but can be developed for more specific environments



Canopies and clouds can help dissipate and absorb noise levels. Secondary sound insulation can also be used on existing ceiling grids to help noise reduction



## Ceilings

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## Screen Systems

By careful use of desk and floor standing acoustic screens we can help diffuse and absorb noise levels. Screens are very effective when added to other noise reduction systems as they can create a physical barrier and therefore intercept sound waves between people



## Office Screens

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### Sound masking systems

New technology helps us to control our environment by use of a networked speaker system, installed within the ceiling, that delivers sound through to individual work spaces. This sound effectively masks the specific noises that generate distraction and discomfort by creating its own 'noise'. This 'noise' varies continuously in frequency so that it does not distract or indeed cause more noise nuisance. This system is particularly effective in glass meeting rooms to help keep voice levels down and retain privacy

### Sound Masking

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*Typical example of a floor tile designed with acoustic values*

Impact sound reduction $\Delta L_w$	ISO 140-8	dB	30					
Sound absorption	EN ISO 354	freq. Hz	125	250	500	1000	2000	4000
		$\alpha_s$	0.01	0.05	0.11	0.25	0.47	0.56
Noise reduction	EN ISO 354	$\alpha_w$	0.20					

Flooring ,similar to ceiling tiles, gives added sound absorption and diffusion to the work environment. Unlike ceiling tiles they can also ensure that noise generated from footfall is more effectively dampened and can also help insulate noise between floors (useful in older buildings or conversions). Broadloom carpet with use of underlay is more effective than tiles .but for practical reasons most companies will look toward a good sound absorbing tile as the best ‘real world’ option.

## Flooring

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### Acoustic Wall Art

These panels are used to clad wall surfaces and the backs of furniture items like storage cabinets to reduce the reflective nature of these surfaces and assist in absorbing the sound energy. A large choice of art design or your own personal prints can be used for these Panels.

### Acoustic panel Storage

By clever use of materials even furniture in the office can be used to improve sound absorption and diffusion



### Furniture and Internals

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## Summary

Sound or noise control is a key factor in helping to create an effective working environment and there are many tools available to reduce noise levels. Whilst it is advantageous to reduce specific noise issues we would not advocate trying to massively reduce general office noise levels.

Recent research has suggested that general office noise can help stimulate the brain and help us focus on our work as we associate this background noise with our work environment.

Active ergonomics relies on all our senses and body being comfortable that is why a more holistic view of the workplace is necessary. For more information on any aspect of ergonomics or any of the items discussed above, please do not hesitate to call or e-mail us.

Our independent status allows us to research the market place and find the right solution for our clients rather than having to 'force feed' a solution from a manufacturing partner. This same independence allows us to negotiate a competitive buy price whilst still maintaining high service levels.

Tony King

Director

[www.think-furniture.co.uk](http://www.think-furniture.co.uk) *Improving your quality of life at work*

Summary

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