

Over **80% of workers** believe a **quieter environment** would allow them to be **more productive**



**acoustics at work**<sup>™</sup>  
FURNISHHH YOUR OFFICE

## Sound management skills

# Shhh, but do tell everyone.

The modern work place is now an open plan arena. The private office has been swept away, as more flexible working practices have emerged. Yet for all their advantages, most open plan offices still suffer from the distraction of noise.

Acoustics at Work exists to offer businesses the ability to manage sound levels with a high degree of accuracy, ensuring that productivity and privacy are maintained, whatever other barriers fall within the work place.

Nick Turner Managing Director



Acoustician at Work

# Yet for all their advantages, most open plan offices still suffer from the distraction of noise.



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A unique and simple system that offers accurate acoustic 'scoring' of office environments.

## Sound check

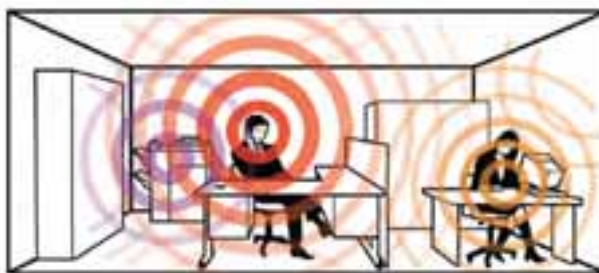
# Analyse your acoustic environment.

The Acoustics at Work analysis system offers acoustic 'scoring' of office environments. It allows you to input specific information about an existing office which is then analysed by our Acoustics Specialist.

The acoustic properties of every surface and resulting Reverberation Time of the space are assessed and a report is produced rating your office according to our points system. Each product in our catalogue is worth a specific amount of acoustics points allowing you freedom of choice in the acoustic design of your office.

Until now, assessing the acoustic qualities of any work place has been the job of an expert. It has required an understanding, not only of the acoustic properties of furniture, screens, floors and ceilings, but a thorough grounding in the properties and behaviour of sound.

Yet now, our expertise in acoustic management has allowed us to develop a unique and simple system that offers accurate acoustic 'scoring' of office environments, quickly and easily assessing the Reverberation Time of every space. A design solution is then produced that will allow the creation of acoustically efficient, and therefore, productive working spaces.



**fig 1.** Noise travels freely.



**fig 2.** Acoustic furniture to stop direct sound.



**fig 3.** Sound absorbing materials reduce reverberant noise.



# Range Guide







# Acoustic Pods



## Why is having good acoustics important?

Over the past couple of decades, offices have evolved into flexible, multipurpose, open plan areas where barriers are pulled down in order to create non-hierarchical professional environments. The emphasis on team work, communication and flexibility is ever growing.

Along with these changes in work structure are changes in style and aesthetics. Clean lines, minimalism, light and hard surfaces have all become desirable in the design of our work spaces. There have also been advances in technology – computers are smaller, monitors are flat and slim and telephones have become simple headsets.





We can now fit double the amount of people into these spaces. Saving space means saving money. Or does it?

More and more we are seeing workers escaping outside to have important conversations on the telephone -often with a hand over one ear.

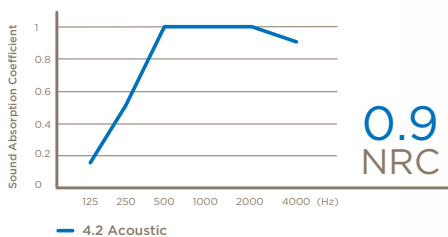
We are also seeing areas which are designed to be private spaces and meeting rooms being left unused due to poor acoustics and poor privacy. Workers sit at their desks listening with headphones on in order to block out unwanted noise and conversations in order to get their work done.

# Acoustic Pods

Unlike traditional pods which are totally enclosed, Acoustics at Work Pods are not simply boxes which contain sound. The design of the walls and patented roof system is such that sound absorption is optimised, whilst still allowing the free flow of existing air conditioning systems.

**Weighted Sound Reduction Index (Rw) = 28dB**

**Sound Transmission Class (STC) = 28dB**



Even at low levels, unwanted sounds can  
by increasing stress levels, and impairing



constitute health and safety hazards  
communication and concentration.



# Acoustic Offices



## Why is having good acoustics important? (continued)

Employers increasingly have to consider the health and safety of their employees as well as their productivity and in some ways, this move to the minimalist, open environment has made this a challenge. Facilities managers, designers and architects are required to address light and air quality, but what about noise?

Why is this the most neglected area of design when research shows that it is the number one complaint of occupants working in these spaces? We would not expect anyone to work productively in poor light, but why then are we ready to accept poor acoustics?



But don't take our word for it! Several studies have demonstrated the harm of poor acoustics in degrading memory, concentration, productivity and even health! They have also shown the vast benefits and improved quality in the working experience following acoustic refurbishment.

With the correct design, these open spaces can fulfil all their intended purposes, increasing business success and saving money. However, ignoring this aspect of design can lead to disgruntled, distracted workers, who leave work exhausted from the added effort of fighting noise levels in order to concentrate.

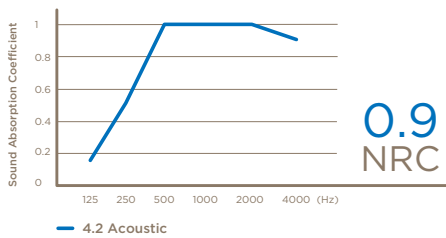


# Acoustic Offices

This system is a real alternative to traditional partitioning. Whilst being comparable per meter in cost, it has the advantage of no additional costs related to air-conditioning or dilapidation and is easily reconfigured. Simply add it to the balance sheet.

**Weighted Sound Reduction Index (Rw) = 28dB**

**Sound Transmission Class (STC) = 28dB**



57 percent of the workers said  
“major deterioration” in their





15

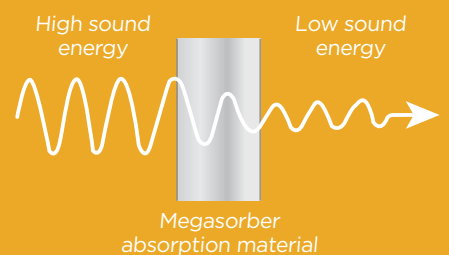
background noise caused  
ability to concentrate.

# Acoustic Receptions



**The ABC of Acoustics** - Solving acoustics problems is as simple as ABC – Absorb, Block, Cover.

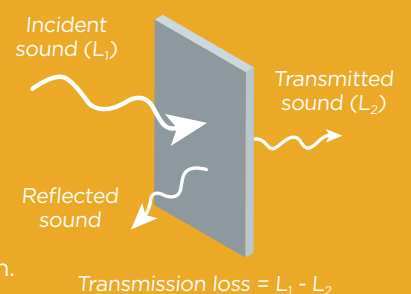
**Absorption:** Acoustic energy is lost as heat through friction of molecules. In general, for porous materials, the thicker the material, the wider the frequency range for which it is effective. Products which are absorbent in office spaces are formed from some sort of acoustic foam, rockwool, glassfibre or mineral wool. These are integrated into ceiling tiles, acoustic screens, acoustic carpets, acoustic wall art and even storage solutions. Absorption is essential in reducing excessive reverberation within a space, thereby lowering overall noise levels.







**Blocking:** Sound is redirected by a solid, blocking surface which must be large enough to interrupt the direct sound path from the source to the receiver. In general, the more massive this surface the greater is its ability to block. Solid elements such as rubber or MDF are placed within the core of acoustic screens in order to provide blocking as well as the absorption the porous material provides. Screens which are ideal for speech privacy implement both blocking and absorption properties within their design.



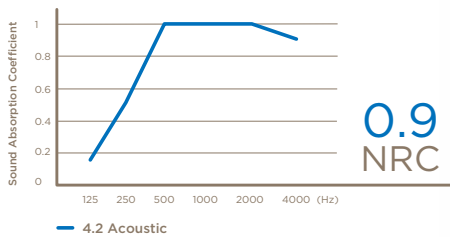


# Acoustic Receptions

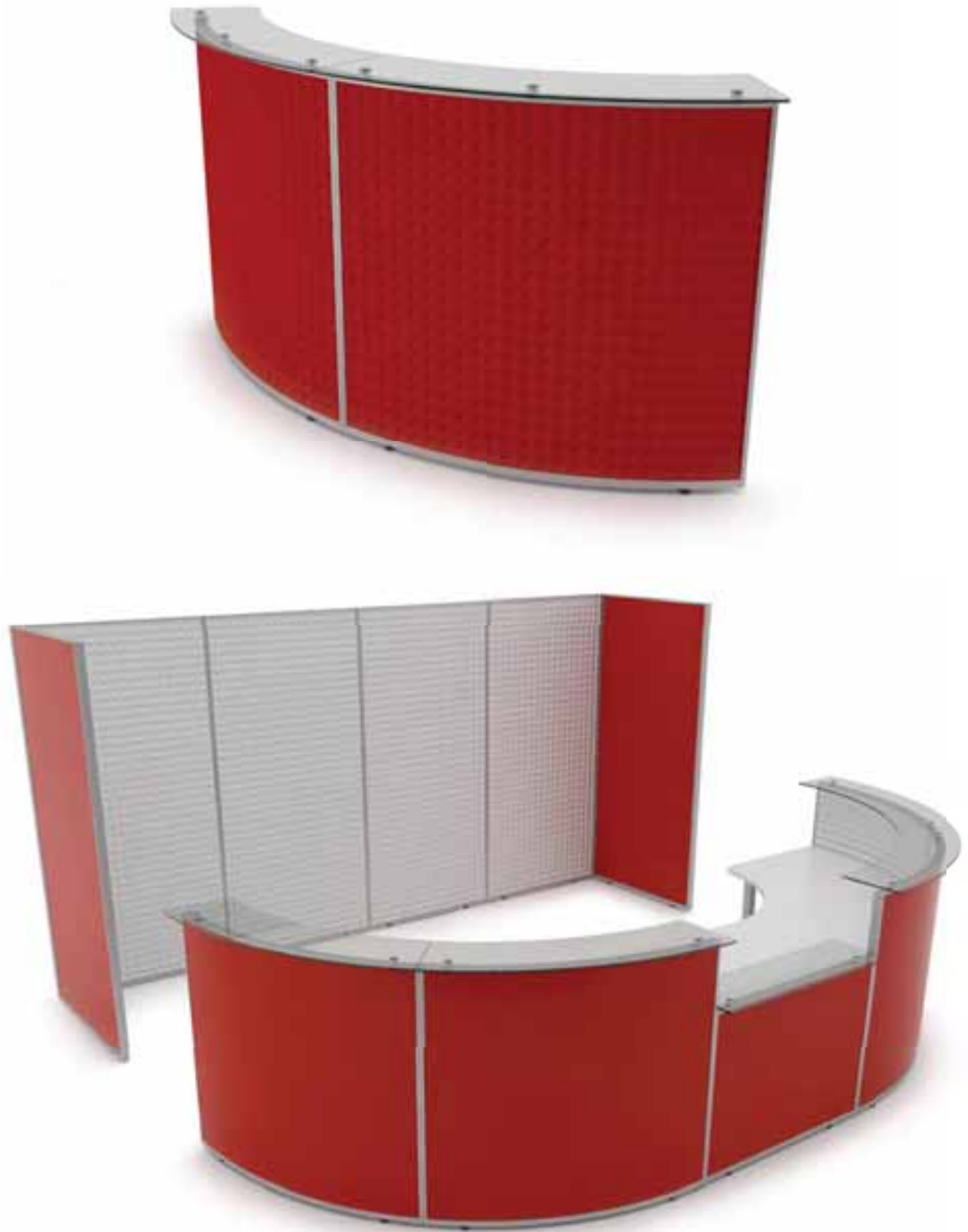
The Front of House can be flooded with hard, clean surfaces – the ideal environment for excess reverberation. Acoustic reception units can go some of the way to counteracting this effect without sacrificing the aesthetics.

**Weighted Sound Reduction Index (Rw) = 28dB**

**Sound Transmission Class (STC) = 28dB**



Over 80% of workers believe a quieter to be more productive



19

environment would allow them

# Acoustic Work Areas



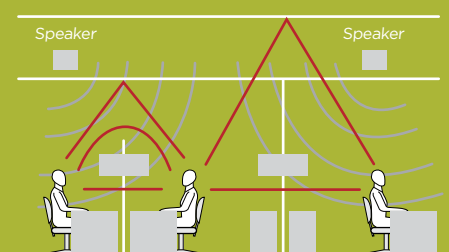
**Covering:** The introduction of a new sound source makes others less distracting. In very quiet environments, such as libraries, any noise, no matter how quiet, can be distracting. While we do not want excessive noise levels within offices, at the same time, we do not want to work in an environment which is deathly quiet. Low noise levels can be detrimental to acoustic privacy between work stations – that is, the quieter the environment is, the more

likely we will be able to hear the conversation of others clearly. The clearer and more intelligible speech is, the more distracting it becomes. This is similar to the way a single flashing light is more distracting in a dark room than it is in a well lit room. Masking solutions produce a non-distracting sound, similar to the sound of air conditioning, which is easily tuned out. It raises the ambient noise levels in the office enabling us to concentrate better





and reducing conversational distractions. Each effective acoustic solution for open plan offices will implement these three principals. There are two main types of problems within offices – those where noise levels are two high as a result of excessive reverberation, and those in which the noise levels are low but speech is still disruptive and there is little privacy.

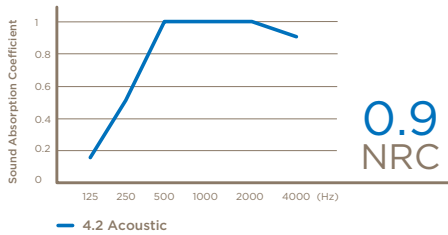


# Acoustic Work Areas

The subtle introduction of acoustic finishes into a work area can go a long way to creating the right acoustic environment.

Weighted Sound Reduction Index (Rw) = 28dB

Sound Transmission Class (STC) = 28dB



In circumstances where auditory distractions worker productivity increased an average of



23

were actually reduced or eliminated...  
nearly 20 percent.



# Acoustic Utility Areas



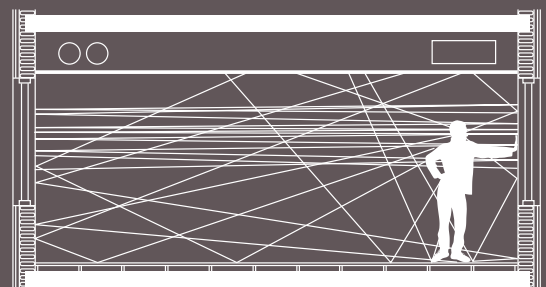
## What is Reverberation?

When sound waves are incident on a surface, part of the sound energy is absorbed or transmitted through the surface, and some is reflected off the surface. Generally, the harder and smoother the surface is (such as glass, plaster and wood), the more sound it reflects.

Where the space is formed predominantly from surfaces such as this, reflected energy accumulates within the room, raising the noise levels. As human beings, we subconsciously speak louder than noise levels around us in order to be heard.



This leads to more sound energy being reflected off surfaces, further increasing the noise levels in the room – and so a vicious cycle is formed. Control over this reverberation means that communication can take place at normal conversational levels without the resulting build up of noise.

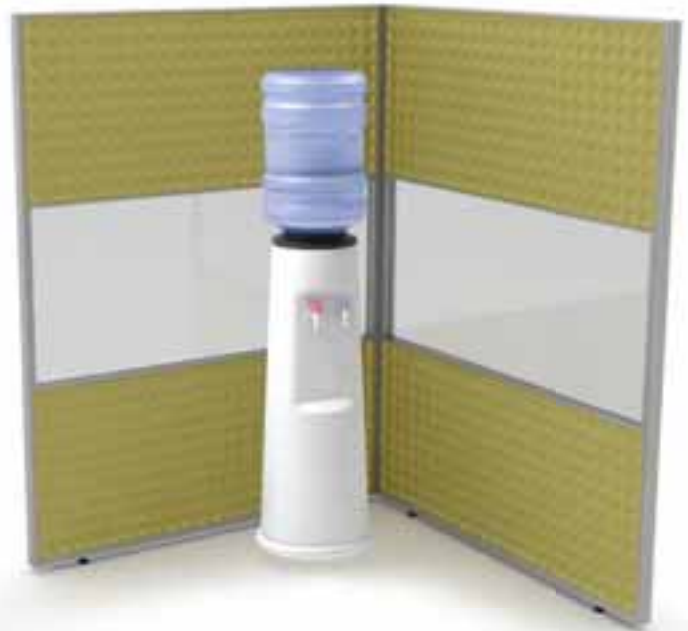
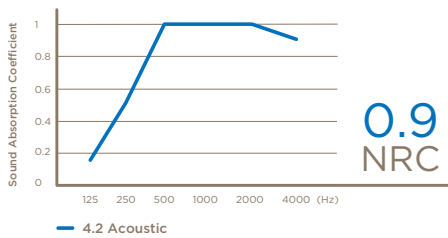


# Acoustic Utility Areas

Utility areas can be significant sources of noise-related distraction. Well placed acoustic cladding can help towards controlling unwanted machinery noise.

**Weighted Sound Reduction Index (Rw) = 28dB**

**Sound Transmission Class (STC) = 28dB**



26

99 percent (of employees) reported by various components of office noise... sounds was found.





27

that their concentration was impaired  
No evidence for habituation to these

# Acoustic Screens



## What is Speech Privacy?

There does not need to be a high level of noise in an office for acoustics to be a problem. One of the most common problems in open plan offices is that of speech privacy. Now that people share space, they must be forced to share their conversations. This can be problematic when one wishes to conduct private conversations or where

there is the need for conference calling. Good speech privacy does not mean not hearing, but rather not understanding. It is therefore inversely related to speech intelligibility. For example, muffled voices are acceptable where intelligible speech is not. In addition, the clearer the speech of another, the less able we are to ignore it.



While high levels of noise may not be the cause for concern, a high degree of speech intelligibility from adjacent work stations may be.

Achieving good speech privacy requires the implementation of the A, B and C of acoustics.

Absorption helps to minimise reflections and reduce the overall level of the unwanted sound, blocking aids in containing the sound and preventing it from travelling into adjacent areas, and covering leads to the unwanted sound being less distinguishable from the overall ambient noise in the space.

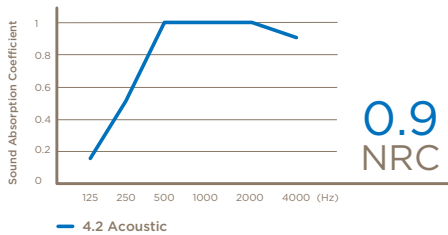


# Acoustic Screens

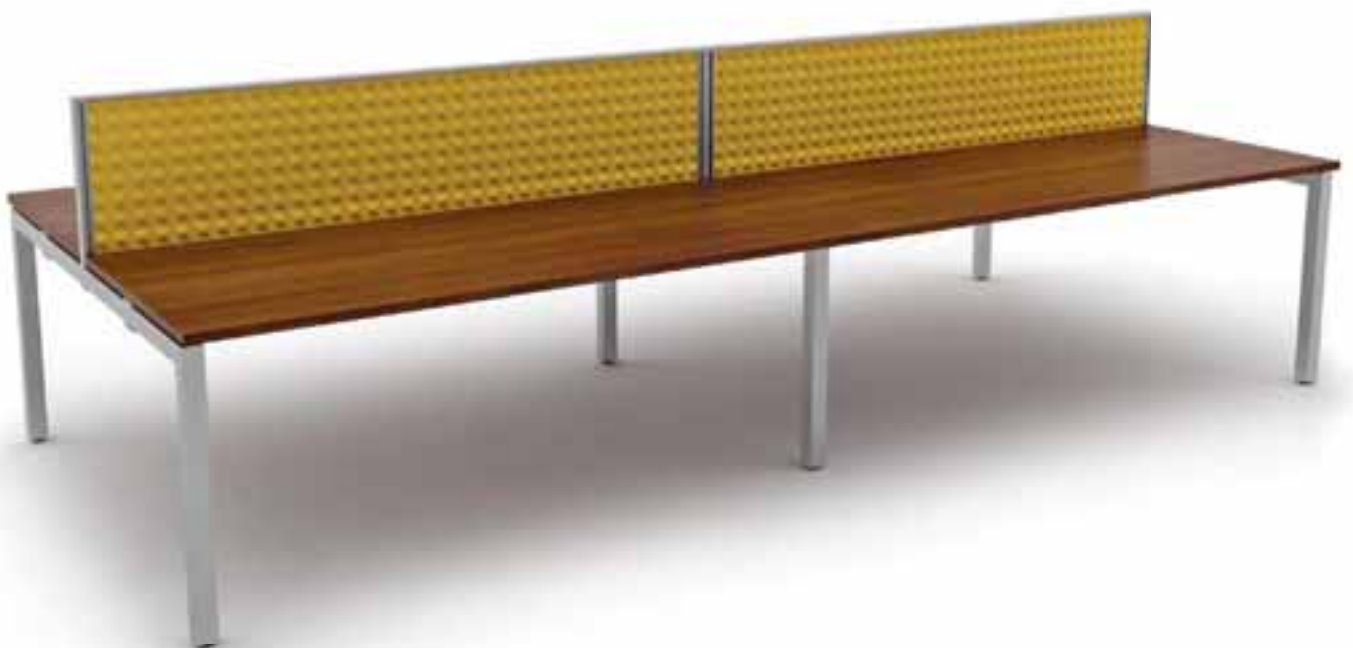
Infinite solutions can be achieved when screens are utilised in their many forms and configurations.

Weighted Sound Reduction Index (Rw) = 28dB

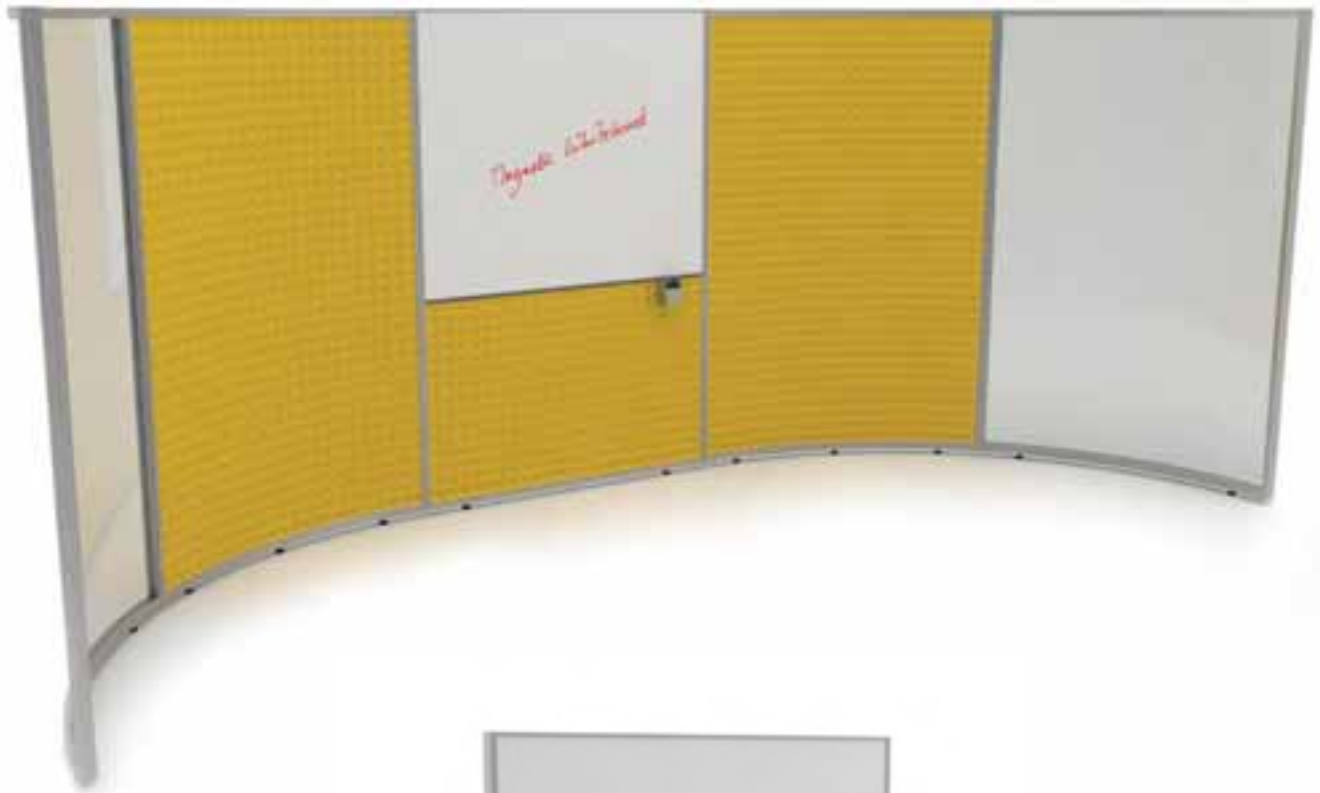
Sound Transmission Class (STC) = 28dB



30



As well as increasing physiological stress, most frequent reasons for causing impaired play a contributory factor in so-called



background sound is cited as one of the performance and has been suggested to Sick-Building Syndrome.

# Anatomy of a Pod

Creating acoustically private spaces is difficult without building partitioning, and even then, sound transmission through the ceiling void can result in a high degree of speech intelligibility where this is not desirable.

The aim is therefore to create a space where air can circulate freely, can be demounted and moved if need be, but provide the desired level of acoustic privacy. Such a system would take advantage of the A, B and C of acoustics.



Demountable roofing system



Inline bracing



Inline connectors



Power Tower





Sliding door mechanism



Integral lighting



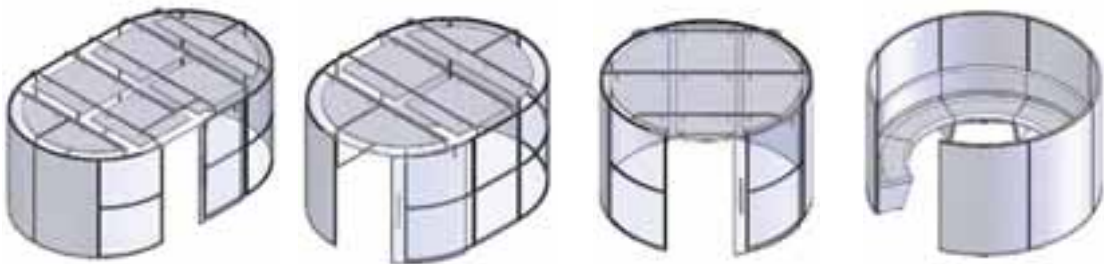
Acoustic core



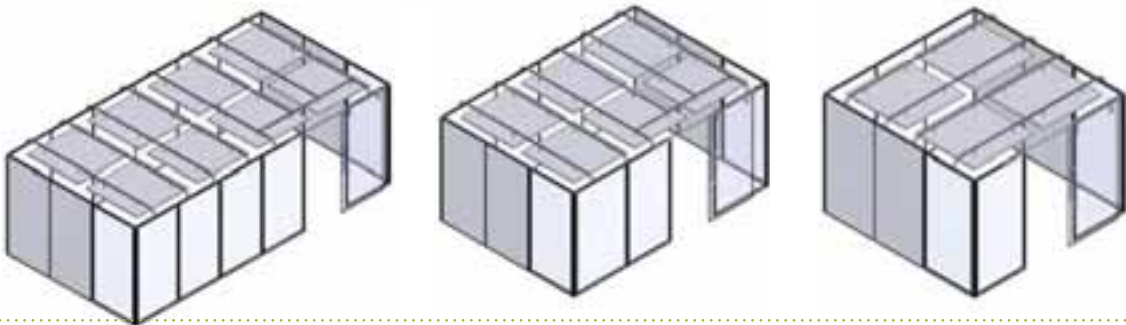
Sealed glazing unit

# Components

Acoustic Pods



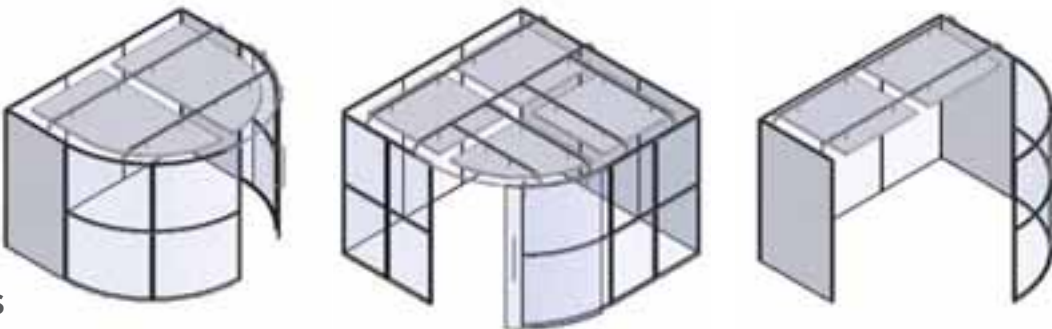
Acoustic Offices



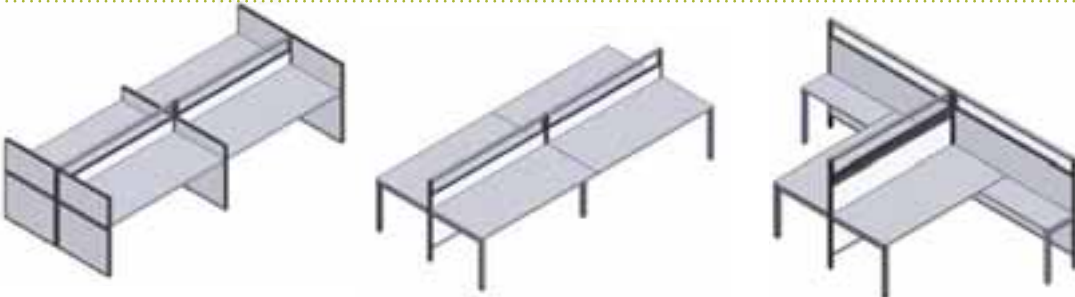
Acoustic Receptions



Acoustic Utility areas

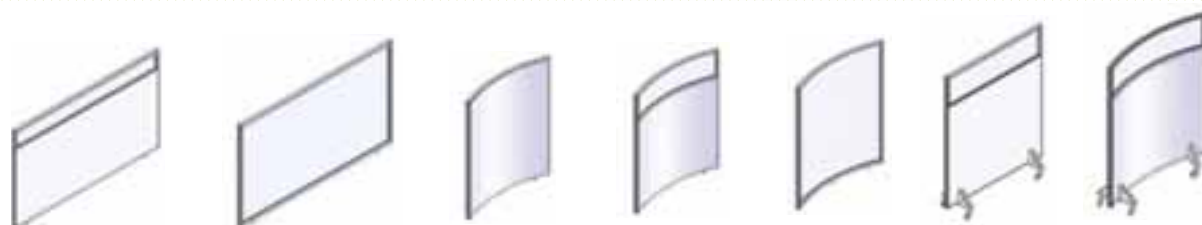
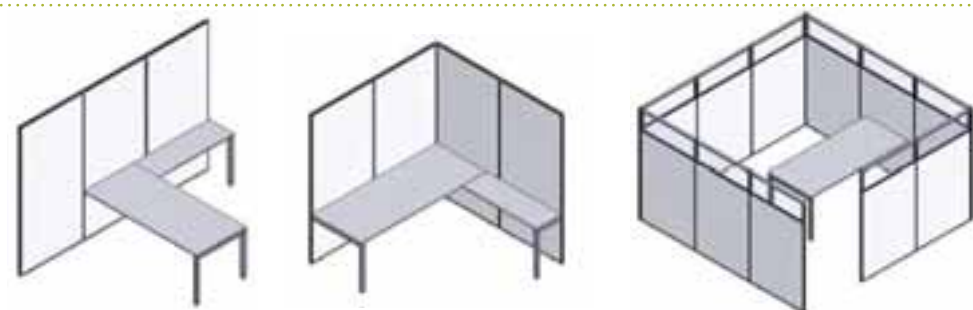
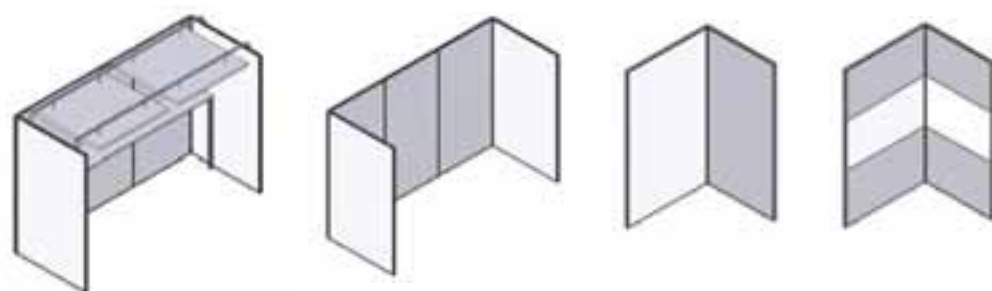
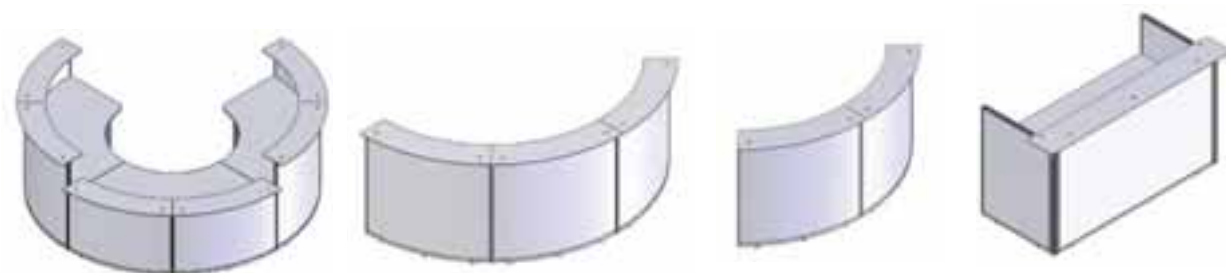
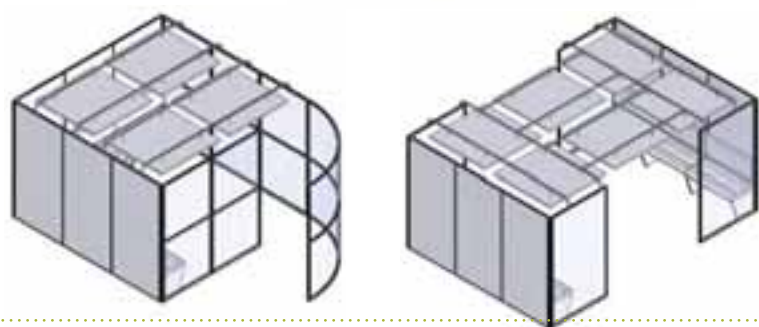
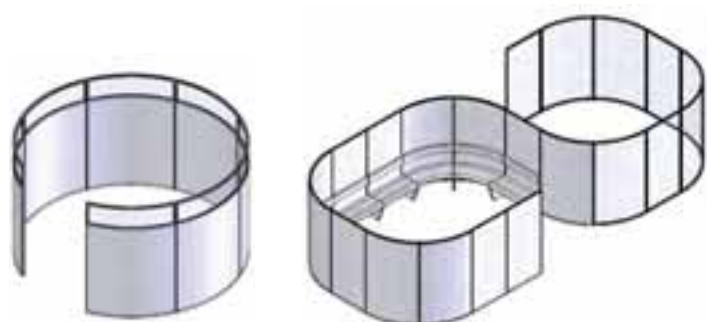


Acoustic Wall areas



Acoustic Screens







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whiteleys

Whiteleys Office Supplies Ltd Croft House, Croft Road, Bromley BR1 4DR  
Tel: 020 8313 3344 sales@whiteleys-office.co.uk  
Fax: 020 8313 9933 www.whiteleys-office.co.uk