SOUND ZERO®

YOUR GUIDE TO ACOUSTICS IN EDUCATIONAL ENVIRONMENTS

Discover how thoughtful, design-led acoustics can enhance learning outcomes for your school project

ACOUSTICS IN HARMONY WITH DESIGN

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Sound Zero was born out of the need for acoustically smart design, driven by a shared vision and desire to craft spaces that look, and sound, great.

This Guide to Acoustics in Educational Environments was created to provide insight into the challenges that schools today face. Overcrowded classrooms, hallways being used as learning spaces and the ever-present noise of sports halls can negatively impact a student's comfort and ultimately, attainment.

That's why Sound Zero has developed a series of bright, interesting and idea-inspiring acoustic systems to suit the individual design requirements of any school environment, without compromise.

SOUNDZERO

OUR CLIENTS

Sound Zero has helped tackle noise issues for a number of high-profile clients, creating tailor-made acoustic solutions that are on brand and on trend.

facebook

UNIVERSAL MUSIC GROUP

UMC

adidas

WORK.LIFE

SPACES.

techspace

THE CROWN ESTATE

altman solon

NHS

oktra

Another_Space

VF

MODUS:

THE KERNEL BREWERY LONDON

MINISTRY OF SOUND

SPACE

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INTRODUCTION

Poor acoustics affects us all, particularly when in high traffic areas, such as the workplace. However, when a learning environment is subjected to poor acoustics, it's a student's educational outcomes that are compromised.

Under-resourcing and a lack of funding has meant that many educational establishments in the UK aren't set up with acoustics in mind. Classroom overcrowding often means that lessons spill out into the corridors and large sports halls are often used for a multitude of purposes, from food halls to assembly areas.

Whether you're a Senior Leader in an educational setting or a designer involved in the refurbishment of a school, this guide sets out to highlight how you can incorporate acoustics within your design, making for an awe-inspiring, yet comfortable setting for both staff and students.

WHAT IS ACOUSTIC TREATMENT?

Acoustic treatment refers to the measures you take to control sound within a space. It mostly tends to consist of identifying the different surfaces in a room that are contributing to the room's noise problem and targeting those for treatment.

FIRST, A LESSON IN SCIENCE...

Some noise issues are different to others and the solution depends very much on the situation.

Noise is rooted in different sources and can be identified primarily as high frequency, low frequency and impact.

It is important to identify the noise types you are dealing with in order to select both the correct acoustic solution and the correct method of installation.

When a sound is created, it propagates from the source in all directions, radiating outwards until it encounters a boundary element.

Three different points intersect when sound reacts with its environment that all contribute to what we hear:

01 DIRECT SOUND

This implies that the sound has not reacted with its environment before it reaches your ears (which is what we want).

02 REFLECTED SOUND

We hear reflected sound when the noise interacts with a surface that sends the sound bouncing back. This reflected sound can be incredibly obstructive when combined with the direct sound we mentioned as it causes the brain to work harder in decoding the two similar sounds to localise its source (which is how humans can tell which direction a sound is coming from). This mental conflict contributes to fatigue and a loss of concentration.

03 REVERBERATION

This is how long it takes for sound energy to dissipate in a space until it is inaudible. Your brain can cope with singular sources of reverberation as it helps us know how big a space is, but when your brain tries to unravel multiple reverberated signals all at once, it can struggle to create a clear sonic image of the environment, again causing tiredness and in some cases claustrophobic responses.

When a sound wave encounters a surface, it is either absorbed or reflected. An example of an absorbent material is carpet.

Sounds will reflect off hard, shiny surfaces such as windows, desks and hard floors. The reflected sound wave will continue to travel until it reflects off another surface.

The sound you hear in a room is an accumulation of direct sound and all the sound waves being reflected off many different surfaces.

The key point to consider here is: how many hard, shiny surfaces are there in your educational environment? The chances are quite a lot.

WHY SHOULD SCHOOLS CONSIDER ACOUSTIC TREATMENT?

We briefly explored some of the challenges that modern-day schools face, including overcrowded classrooms and areas being used as learning spaces that weren't initially intended for that purpose.

For those reasons alone, Senior Leaders should be seeking to explore ways to get the most out of their educational environment, particularly if there are compromising scenarios at play. Designers, too, should factor in acoustic comfort when designing such spaces.

From a compliancy perspective, **Acoustic Design Of Schools: Performance Standards Building Bulletin 93**, sets out minimum performance standards for the acoustics of school buildings, and describes the normal means of demonstrating compliance with the Building Regulations.

The overall objective of the performance standards is to ensure that the design and construction of school buildings provide acoustic conditions that enable both effective teaching and learning.

MODERN ACOUSTIC SOLUTIONS

It is only until recently that acoustic solutions have become a key design element within different settings. In previous times, 'acoustic foam' will have possibly drummed up pictures of recording studios, heavily laden with thick foam blocks.

Nowadays, acoustic foam can be manufactured to create a unique aesthetic, and more and more manufacturers are utilising different materials for their superior acoustic qualities and their eco-friendly credentials.

Acoustic panels come in a variety of shapes and sizes. They have been designed to accommodate a range of applications, making them the ideal solution for any educational setting.

Senior Leaders should be seeking to explore ways to get the most out of their educational environment

7 COST-EFFECTIVE WAYS TO CONTROL SCHOOL ACOUSTICS

Quite often bad acoustics can be moderately improved upon with a few simple tweaks.
We always suggest exploring cost-effective options first, before making more expensive investments. Here we highlight some of our 7 cost-effective ways to control school acoustics.

1. Sound absorbing soft furnishings
2. Keeping windows closed
3. Soundproofed partition walls
4. Plants
5. Acoustically treated ceilings
6. Hidden acoustic panels under desks
7. Playing ambient noise

If you would like to a read more in-depth evaluation of our cost-effective solutions, read our detailed article here

DIFFERENT ACOUSTIC PANELS FOR EDUCATIONAL SETTINGS

Different environments will require different solutions, which is why we seek to fully understand your goals and objectives during out initial consultation process. **A small classroom's acoustic requirements will be vastly different to that of a sports hall.**

01 ACOUSTIC PANELS FOR CLASSROOMS

For anyone who has spent a considerable amount of time in a classroom, you will know that noise from neighbouring classrooms can be a source of distraction for learners, particularly when pupils are carrying out a focused task.

Some classroom spaces are merely separated by a thin wall partition, which can be troublesome for both staff and students.

For these instances, the most effective solution is to apply a mass-loaded acoustic panel to the wall. This will physically block sound from entering (and leaving) the room.

An acoustic wall covering can present a unique aesthetic to a classroom.

02 ACOUSTIC PANELS FOR SCHOOL HALLWAYS

As previously mentioned, hallways have become an additional learning area in many modern-day school environments, acting as 'breakout spaces' for Teaching Assistants and support staff alike.

Careful use of furniture will help establish a comfortable learning area for a student - even in a hallway, but not much can be done to stop reverberations of noise from those walking up and down the corridors, or from those engaged in an activity.

For these situations, Acoustic Panels that are strategically placed on 'reflection points' will help to absorb the sound bouncing off the walls. Such panels can be 'disguised' as unique art pieces to blend into your school corridor's décor.

Our Wall Panel Pros can incorporate your own designs. Why not incorporate children's artwork onto one of our Acoustic Panels?

03 ACOUSTIC PANELS FOR SPORTS HALLS

The school sports hall: one of the most multi-functional spaces within a school. One minute it's an assembly area, the next, a space for indoor games. And by lunch time – in many cases - it gets converted into a canteen.

Have you ever entered a dinner hall with 50+ screaming children?

Of all the areas within a school, sports halls are the one space where acoustic problems are most prevalent. This is due to their high ceilings and hard, reflective surfaces.

Due to its large space, however, there are plenty of ways to be creative with acoustic panels, for example, installing acoustic ceiling systems or applying unique panels on the wall.

ACOUSTIC PANELS FOR CREATIVE SPACES

There are a number of initiatives that champion creativity within schools, and as a result, many establishments have benefitted from extra funding to go towards the arts.

Recording areas such as podcast studios are becoming an excellent way for students to develop their social and communication skills, whilst opening their eyes to different forms of media.

Recording spaces in schools don't have to be big. The don't have to be expensive, either.

Careful choice of your acoustic solution and an investment in basic equipment will unlock a completely new area of the curriculum for learners, and by turning an unused area of your school into a podcast production studio, you're giving students another opportunity to love coming to school.

Speak to our experts today who will be happy to assist you with both acoustic treatment and equiptment alike.

SCHOOL ACOUSTICS IN SEN SETTINGS

For Special Educational Needs (SEN) settings, classroom acoustics are especially important. Auditory processing disorders, speech and/or language delays and Autism Spectrum Disorders (ASD) all have certain auditory needs which can be addressed within the acoustic design of your setting.

Those with SEN will be particularly sensitive to certain sounds, which may trigger behaviours such as avoiding spaces with certain noises, covering their ears, and outbursts due to the frustration of not being able to verbalise their discomfort.

These children are recognised as being auditory hypersensitive and therefore a positive and controlled acoustic environment is essential to improving their wellbeing and behaviour response.

Due to the versatility of our acoustic panels, it's possible to create a decorative wall that helps control room acoustics, whilst providing learners with multi-sensory stimulation – both visually and by touch.

THE SCHOOL FIT-OUT PROCESS

With so many options out there, we understand that acoustic solutions can be a bit of a minefield. And it's not just about sticking some foam on the walls!

Schools are an exciting place to be these days. We're seeing a rise in podcast studios, break-out spaces and modern classrooms, which are opening up a whole new world of acoustic possibilities...

STEP 1
Initial Acoustic Consultation

STEP 2
Modelling Rooms

STEP 3
Manufacturing Acoustic Products

STEP 4
Acoustical Installations

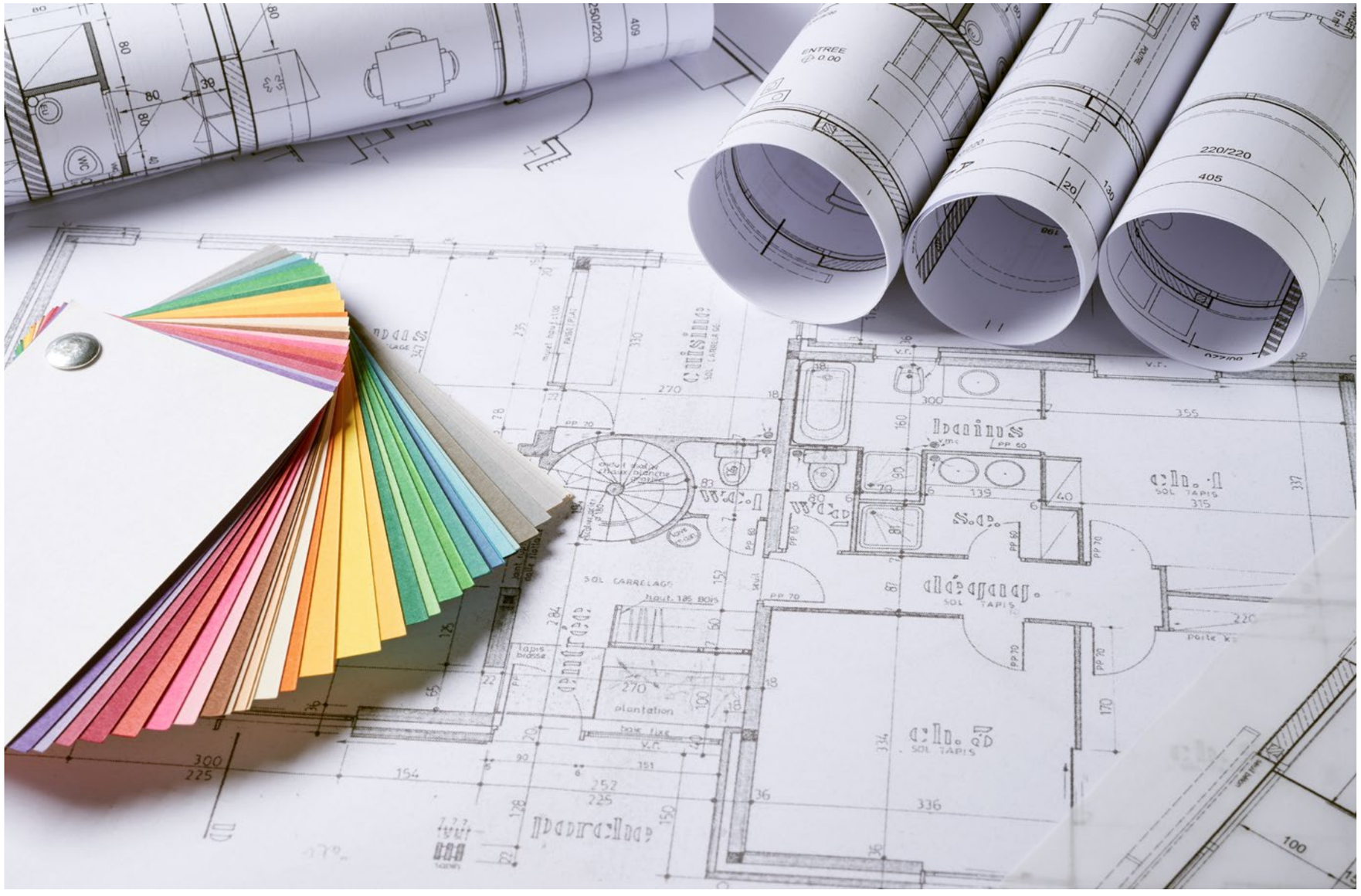
STEP 1:
INITIAL ACOUSTIC CONSULTATION

The process begins with the consultation. This is the most vital part of the process as it allows us to understand the nature of your requirements.

The client would normally specify us with some form of drawing or floor plan, or we can come and take measurements.

Following this, we ask the client about the type of traffic that's usually in different areas. Is it normally busy or quiet? Where are the social hubs? Where are the different learning spaces within the school?

These types of questions allow us to gauge the level of acoustic treatment that might be required.



STEP 2:

MODELLING ROOMS

The visual impact of our acoustic materials has to be seen to be believed. This phase gives you the opportunity to gain an insight into what your office will eventually look like.

Using the latest software, we will build a 3D computer model based on your floor plans and the information gained during the consultation.

This allows you to physically see how your school will look once our acoustic products have been installed.

Our plans will be broken down into a proposal document. This will contain various elements, including:

THE PAPERWORK

- Materials we'll be using
- Information on the materials (fire rating, safety standards)
- Fit and finish options
- Installation time scale

Of course, every classroom is unique, and our proposal document will be aligned with each individual school's needs.

We aim to complete the proposal document within 7 days of the initial site visit, but this will largely depend on the size of the project.

PROVIDING ACOUSTICAL SOLUTIONS DIFFERENTLY

The work we do for each client is bespoke. We pride ourselves on the level of interaction that we have with each client and we're prepared to adapt our model and offering if necessary.

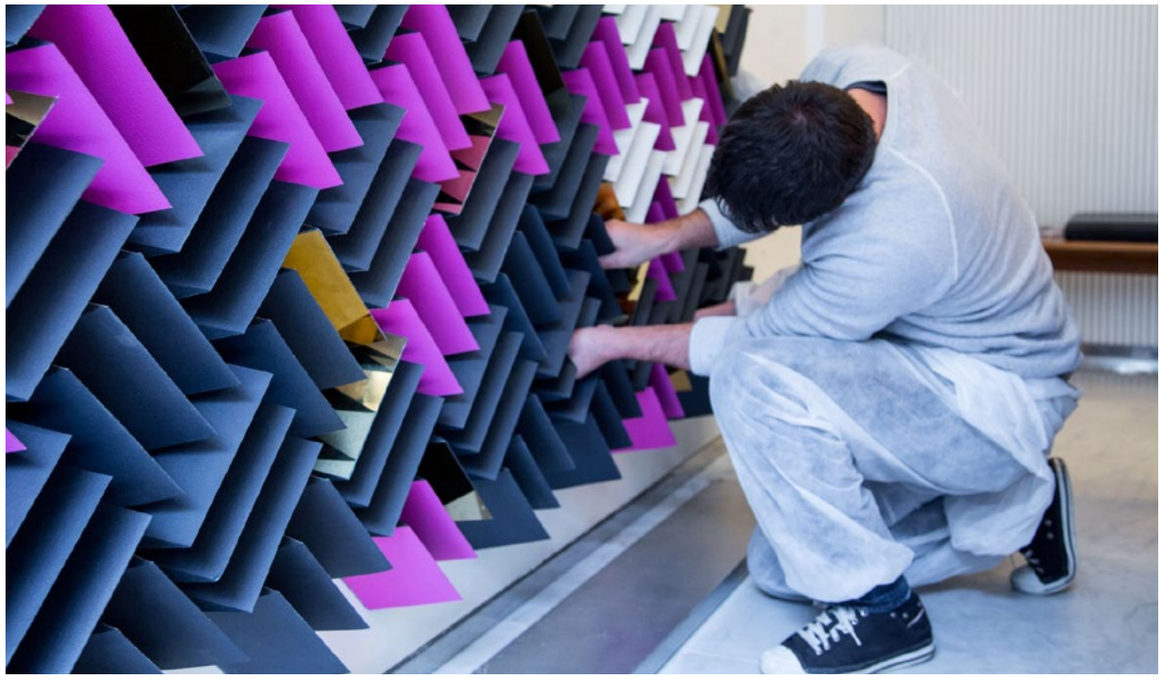
With Sound Zero, we won't put any restrictions in your way. We're a solution-based company that's driven by creativity and acoustic comfort.

STEP 3:

MANUFACTURING ACOUSTIC PRODUCTS

Our products are made to order at our own UK manufacturing facility, so you can be sure of exceptional quality and that everything made meets all the British safety standards.

We're constantly expanding our in-house manufacturing process and use cutting edge technology and machinery to deliver sustainable and eco-friendly products. We even have our own in-house recycling plant.



STEP 4:

ACOUSTICAL INSTALLATIONS

During the installation process, there'll be a site manager that gets assigned to the install. That person will oversee the operation, ensuring that the work is carried out efficiently and to a high standard.

We have a team of highly skilled installers that work fast and provide professional results. We can even work out of hours to minimise disruption to your workforce.

THE COMPLETE PACKAGE

We approach each new project with the same level of perfectionism, whilst creating a tailored solution based on your individual requirements.

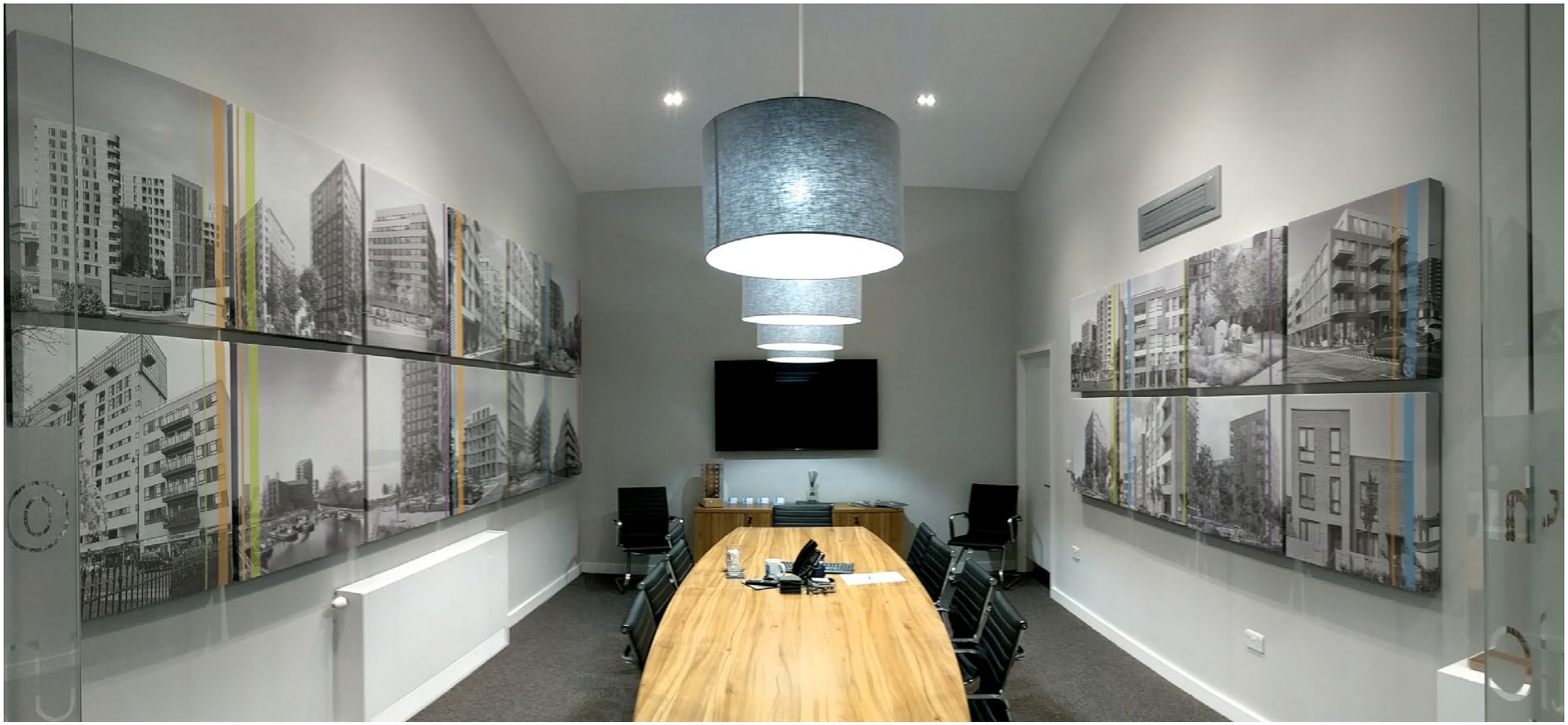
We're with you every step of the way, from design to install and all that's in between. It's what sets us apart. With Sound Zero, you get the complete package.

If you would like to create a school environment that inspires learners, champions creativity and nurtures educational outcomes, speak to Sound Zero today.

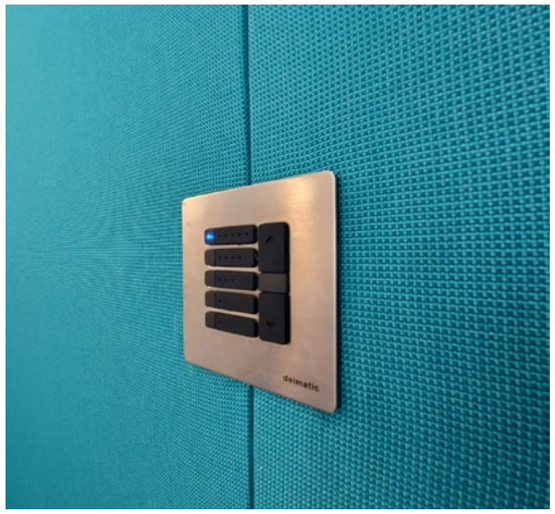
STUNNING ACOUSTICS SOLUTIONS

Our options are endless, and each school is unique, but take a look at some of the solutions available that have been implemented in other Sound Zero projects.

PRINTED WALL PANEL PROS



CUSTOM BUILT PRIVACY PODS WITH CORKBEE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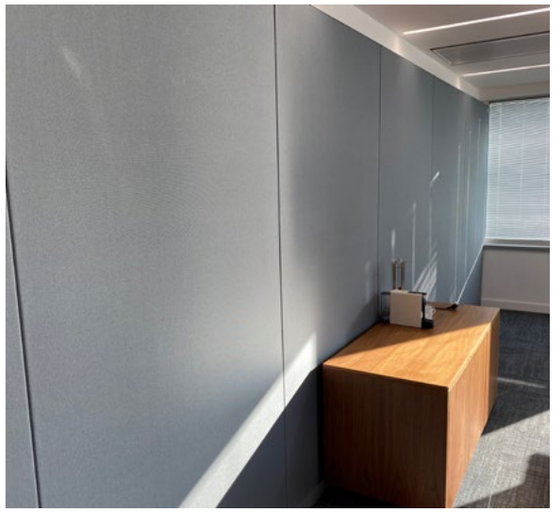
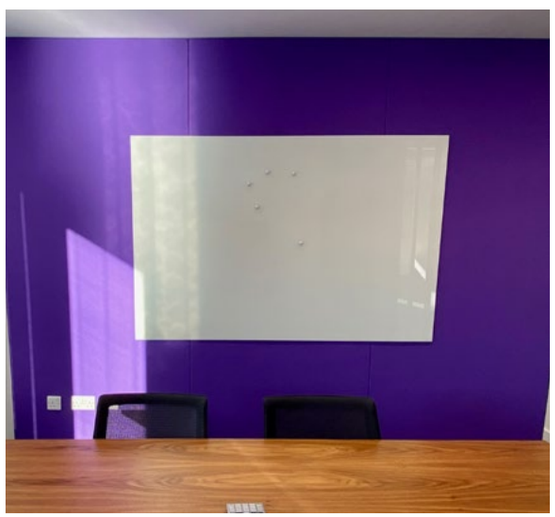
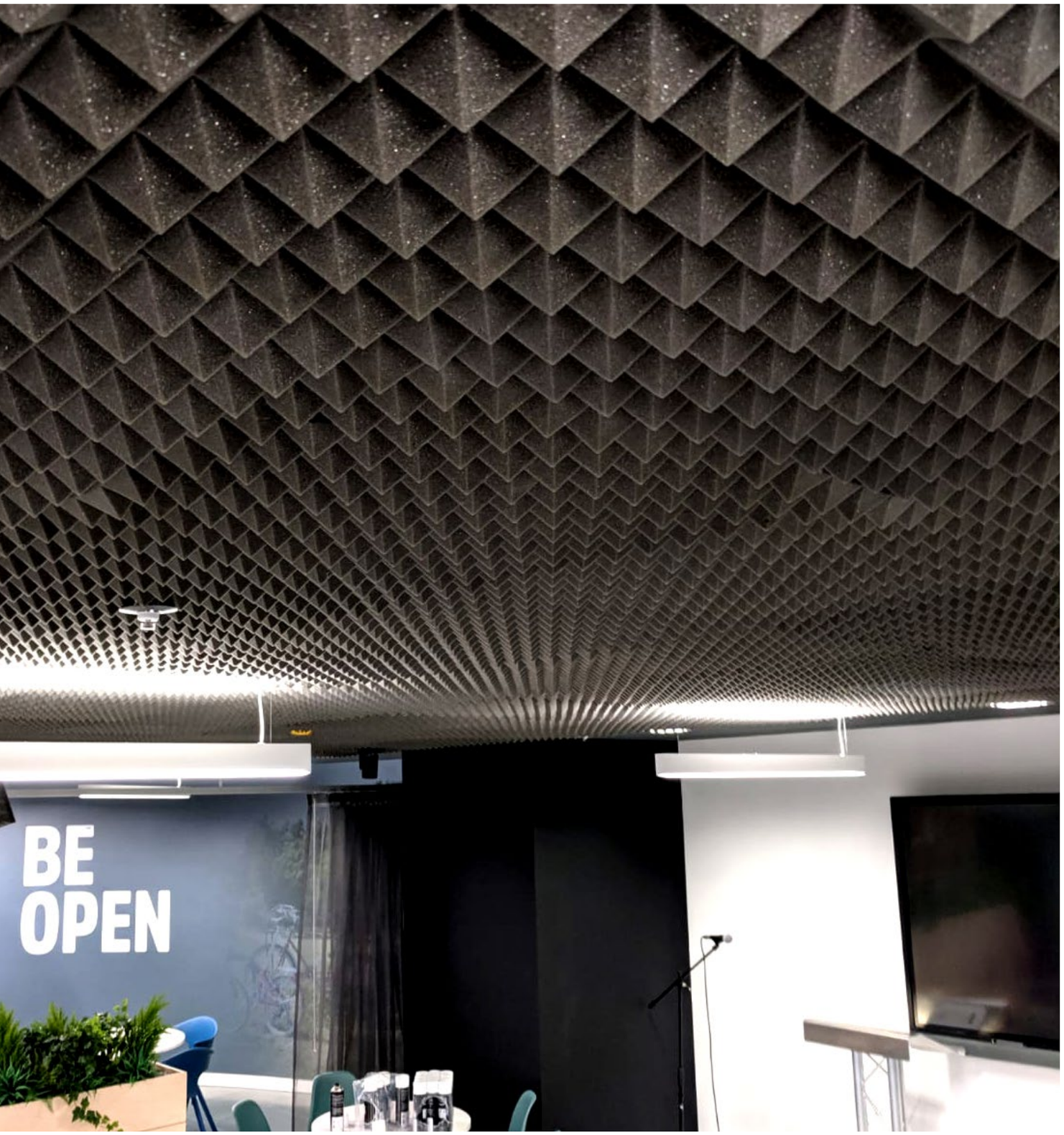
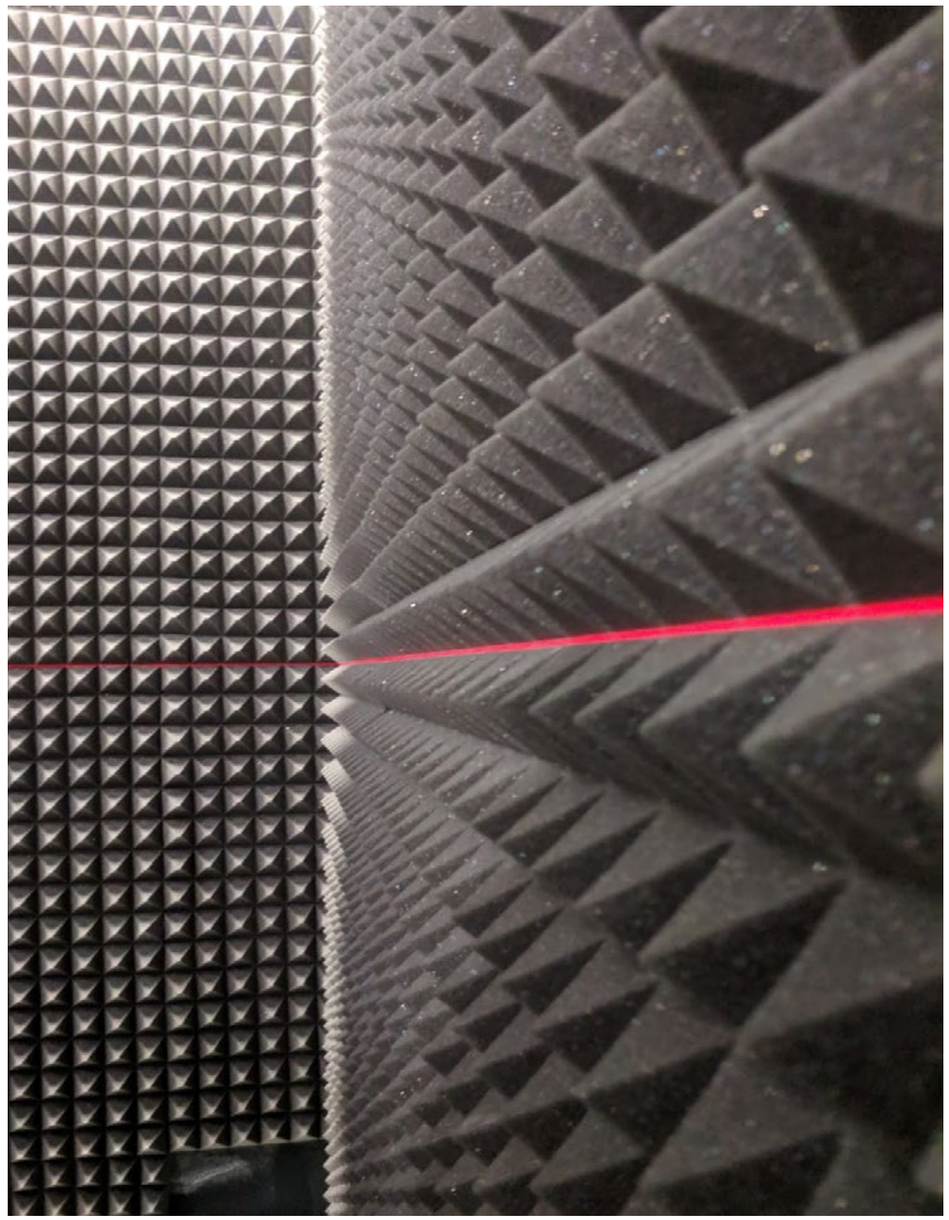






PYRAMID FOAM



FRAMED CORKBEE & MOSS WALL

CLASS 0 HEXAGONS


1
DT 770 PRO


funky junk

SOUND ZERO

CUSTOM FOAM FURNITURE

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Design extras

Why settle for ordinary when we can make everything incredible!

Sound-Zero designed optional extras range from multi-texture finishes, combined with exquisite lighting and smart features. Our team of design experts can elevate any space and make your project as unique as it deserves to be.

CONCLUSION

This guide is aimed to demonstrate the importance of acoustics in school environments.

We view acoustics as something that should enhance a space through its visual impact, and we apply this ethos to every project we undertake.

If you'd like more information on how we can improve the acoustical comfort of your school spaces, get in touch today.

ABOUT US

Sound Zero offers a comprehensive range of soundproofing and acoustic solutions for educational environments, offices, music studios, residential and commercial buildings, industrial premises, public spaces and many other specialist areas, providing complete noise control solutions for any environment.

Operating from their manufacturing base in Essex, the team pride themselves on providing sustainable, UK-made acoustic solutions, pushing creative boundaries where possible – to ensure their clients get a totally bespoke, unique solution every time.

For more information, call 020 3984 2000 or email info@sound-zero.com

THANKS FOR READING

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