Ceiling solutions that enhance learning environments.





Education

6=

A better learning environment

Acoustics present a major challenge to educational institutions. Intelligibility and concentration are acoustical performance demands that our teachers need today, to improve their working conditions as well as their student's.

\$2 (X-7)

Four criteria to make the right choice

Acoustical Comfort

In the school environment, no two spaces have the same acoustics. The appropriate point of equilibrium between intelligibility and concentration, which depends on the intended use of the space, must be located.

Visual Comfort

A bright environment makes everything clearer. In a school, the main objectives is to make the best possible use of daylight to avoid having to use electricity. The ceiling can play a crucial part in optimising light reflectance which can allow energy savings, in case of indirect lighting.

// Safe & Healthy Environment

Certain environments, such as kitchens, laboratories and cloakrooms, need particular attention with regard to cleaning and humidity resistance. Temperature variations during the holiday periods also give plenty of scope for moisture to penetrate the tiles and cause damage. Ceilings must therefore have excellent resistance to high levels of moisture.

// Cost Effective Solutions

Pupils come and go but ceilings must stay intact for many years. It is important to choose strong materials capable of withstanding degradation, maintenance work and climatic changes, as a cost effective solution.



Zentia has the broadest portfolio of ceilings with high recycled content, up to 80%. Zentia exercises care in the selection and use of raw materials for our products and is committed to ensuring all products conform to or exceed safety, environmental and quality standards.

Do you know?

How do you make yourself clearly understood?

Armstrong's standard range of medium-density ceilings strikes an outstanding balance between both sound attenuation and sound absorption, blocking unwanted noise from outside while enhancing sound quality inside.

Ideal for classrooms.

How to guarantee the discretion of your conversations?

Armstrong's dB range of higherdensity ceilings minimises noise transfer between adjacent rooms, keeping conversations private and occupants happy.

Ideal for private offices.

How to not be disturbed by noise? Armstrong's OP range of lowerdensity ceilings controls excessive sound reflections, offering customers optimal levels of sound absorption.

Ideal for open plan offices & libraries

Whatever your space requirements, we listen!



// Classrooms

On any given day, thousands of students are unable to understand one out of every four spoken words in classrooms due to inadequate acoustics.

Poor lighting and glare in the classroom can also cause eye strain and fatigue.

Ceiling tiles with balanced acoustic performance and high light reflectance create better and brighter spaces for students to learn, and teachers to teach.

- ✓ Solutions
- Ultima⁺
- Dune eVo dB
- Dune eVo Max

Performances





Libraries, Canteens, Auditoriums

Multipurpose spaces change from cafeterias to auditoriums, requiring different acoustical and durability needs, depending on use.

Noise reduction is key and can be accomplished with ceilings with balanced acoustics to absorb sound and keep it from traveling to adjacent areas. These areas are also great places to mix it up with design options.

✓ Solutions

- Ultima⁺ OP
- Perla OP 0.95 & OP 1.00
- Sierra OP
- Axiom Canopies

Performances





Entryways, Corridors, Individual Offices

School corridors hum with activity as they usher students from classroom to classroom and connect key areas of your project.

In these busy spaces of early education and secondary schools, noise control and durability are key.

Help reduce unwanted noise coming from busy corridors by using ceiling tiles with balanced acoustics that offer excellent sound absorption and sound blocking performance.

✓ Solutions

- Ultima⁺ dB & Planks
- Dune eVo dB
- Perla dB

// Performances





// Kitchens

Ceilings for school kitchens and food preparation areas have to meet guidelines, and be easy to maintain.

Select ceilings tiles that meet the needs for food preparation and processing areas that are easy to clean and maintain. A high light reflectance tile is also appreciated to brighten the environment.



Humid Areas, Toilets, Cloakrooms

Toilet and shower facilities in schools are affected by demanding humidity conditions.

Ceiling tiles suitable for high humidity areas should be selected for these specialist areas in order to perform adequately in these extreme conditions.

✓ Solutions

- Bioguard Acoustic
- Parafon Hygien

Hydroboard

Ceramaguard

Solutions

Performances



Performances



Top of the class: How ceilings are aiding learning for today's youth

A school is a world in itself. A self-contained ecosystem. And like our wider world, there's overcrowding, with class sizes rising, and a distracted population, with ever-more social media outlets clamouring for attention.



Teachers are already overworked – when it comes to engaging and holding students' attention, they need all the help they can get. Which is where the school's physical environment comes into play. Here, we've outlined a few ways the ceiling itself can aid and promote learning – as well as some of the critical considerations we should all take into account when designing spaces in which learning can thrive.

✓ Sound principles

Research clearly shows that acoustics have a profound impact on learning. In their study of two schools in London, for example, Evans and Maxwell¹ conclude that poor acoustics can result in many students struggling to understand one in four words spoken in the classroom. As classroom sizes grow and teachers strain to be overheard and maintain attention, acoustic performance in a ceiling is always the first thing architects turn to for aiding learning. But it's not quite as simple as you'd think.

Most people would presume that, to minimise classroom din, ceilings should provide the highest levels of sound absorption. However, this could actually be counterproductive: while minimising class noise, it would – by extension – mute teachers' voices, leading to vocal strain and fatigue, and students being unable to hear lessons.

Instead, a balance is needed between sound absorption and attenuation, between removing and reflecting sound in the right ways to enable students to hear and teachers to be heard. Just as in higher education institutions, classrooms should take the principles of lecture halls and theatres, directing sound from the front to the back rows, to aid structure, cohesion and comprehension in every lesson. This point about balance brings us to the other major priority for learning spaces: light.

// Light learning

Research has also shown a conclusive link between the provision of natural light and academic success – with one study² showing that students working in classrooms with higher levels of daylight achieve 7% to 18% higher test scores. Another – Clever Classrooms³ – suggests that the design of a classroom has a c25% impact, positive or negative, on the academic progress of students over the course of a year.

Aiding concentration, boosting productivity and improving test results, flooding interior spaces with natural light is a way not just to improve student performance, but also to enhance energy efficiency through reduced reliance on artificial lighting. Combining high-whiteness, high-reflectance mineral ceiling tiles with larger windows or floor-to-ceiling glazing provides an easy way to make this happen – but, again, it's key to maintain balance.

Too much natural light can cause eye strain or create glare that distracts students and staff alike. Reflectance must be balanced with diffusion – transforming the harshness of direct light into a more scattered, ambient glow, bathing classrooms in pleasantly bright light without it becoming an issue.

// Stimulating design

Education should inspire, and every architect wants to create stimulating spaces for learning. Spaces that students can be proud of; that encourage them to think creatively and listen attentively, without distracting them. However, there's a wealth of complications in designing ceilings for learning environments.

For example, in classrooms accommodating children with special educational needs (SEN), the ceiling specification requires particular consideration to avoid designs that could exacerbate students' conditions or inhibit learning. Best practice, for example in line with UK Government standards like BB93, also includes minimising reverberation, keeping ceilings low (below 2.4m) and using Class A absorptive finishes. A balance needs to be maintained between aesthetics and practicality – design shouldn't distract, but should feel fresh, to help engage both staff and students, and the use of colour shouldn't impact on light reflectance.

Similarly, exposed soffits may be a common feature for reducing schools' heating footprint, yet carry their own problems for acoustics and aesthetics – presenting another challenge for architects. A challenge that can be solved through bold, contemporary design that draws on user-centred design principles to disguise unsightly yet functional features through suspended ceilings and canopies. Crucially, these need to attract the eye without distracting the brain – again, remembering that the ceiling is there to aid learning, not to simply showcase design.





// Context is everything

Beyond light, sound and aesthetics, we need to be conscious of the everyday life and use of ceilings within the learning environment. They need to be safe and durable, suitable for day-to-day contact with students of all ages. They need to be compliant with all relevant local legislation, and to meet the unique challenges of each environment – whether it's anti-seismic capabilities in earthquake-prone regions, or the ability to optimise light and acoustics in locations where space is severely limited.

Ease of installation and maintenance are also vital considerations. Errors during installation are all too easy to make – omni-directional tiles, however, can eliminate many of these errors in terms of ceiling construction and tile orientation, for an easier fitting process and reduced need for correction. There are also myriad issues to consider in ceiling placement, from pressure drops (not to mention 'fluttering' when doors are opened) to dust collection and access to the plenum. Architects and designers alike need to factor these in with the same attention to detail as dealing with light, sound and looks.

A world in itself

Here, we've addressed a few of the key concerns for how the ceiling, and the physical environment, can actively aid learning. However, the educational institution extends far beyond the classroom. It encompasses libraries and canteens, auditoria and offices, kitchens, cloakrooms, toilets and corridors. Each of these areas demands a different set of qualities for how they look, sound and perform.

Therefore, it's recommended that architects take a comprehensive approach to 'zoning' throughout a school or college, working with designers and clients to optimise environments for their usage – keeping in mind user-centred design principles at every step. Each zone needs to enhance and focus the educational experience as a whole.

Chronic Noise Exposure and Reading Deficits: The Mediating Effects of Language Acquisition. Gary W. Evans & Lorraine Maxwell, Environment and Behavior – Volume 29, Number 5, Sep 01, 1997.

Daylighting Impacts on Human Performance in School. Lisa S Heschong, University of California, Santa Cruz. Journal of the Illuminating Engineering Society 31 (2) Sept 2013.

Clever Classrooms. Professor Peter Barrett Dr Yufan Zhang, Dr Fay Davies, Dr Lucinda Barrett. (University of Salford). Feb 2015.







Product selector by performance

			Ź	The second secon	$\overline{\mathcal{Z}}$		Ò	\$\$	+
		Recycled Content (%)	Light Reflectance (%)	$lpha_w$	Class	D _{nfw} (dB)	Fire Reaction	% RH	Air Quality
Mineral Sol	utions	5							
Ultima+	(C2C)	33 - 53	87	0.65(H) - 0.75(H)	С	33 - 40	A2-s1, d0	95	ISO 5/A+
Ultima+ OP	(C2C)	23	87	1.00	А	25	A2-s1, d0	95	ISO 5 / A+
Ultima+ dB	(C2C)	64	87	0.60(H)	С	41 - 43	A2-s1, d0	95	ISO 5/A+
Perla	(C2C)	52	86	0.65(H)	С	35	A2-s1, d0	95	ISO 5 / A+
Perla OP 0.95	(C2C)	22 - 51	85	0.95	А	25 - 27	A2-s1, d0	95	ISO 5 / A+
Perla 1.00	(C2C)	23	85	1.00	А	25	A2-s1, d0	95	ISO 5 / A+
Perla dB	(C2C)	64	86	0.50(H) - 0.60(H)	С	41 - 43	A2-s1, d0	95	ISO 5/A+
Perla OP dB		21	85	0.90	А	40	A2-s1, d0	95	ISO 5 / A+
Dune eVo	(C2C)	44	85	0.60	С	34	A2-s1, d0	99	ISO 5/A+
Dune eVo Max	(C2C)	46	85	0.65	С	35	A2-s1, d0	99	ISO 5/A+
Dune eVo dB	(C2C)	37	85	0.60	С	39	A2-s1, d0	95	ISO 5/A+
Sierra OP		15 - 50	84	0.90)	А	25 - 29	A2-s1, d0	95	ISO 5/A+
Optima		77	87	0.90 - 1.00	А	24 (25mm)	A2-s1, d0	95	-
Neeva		20	82	0.90 - 1.00	А	24 - 27	A1	95	-
Plain		39	87	0.20(L)	E	35	A2-s1, d0	95	-
Fine Fissured		39 - 51	85	0.60(H)	С	34	A2-s1, d0	95	-
Colortone Dune	e eVo	44	-	0.55	D	35	A2-s1, d0	95	-
Colortone Neeva		20	-	1.00	А	24 (18mm)	d0/A2-s2, d0	95	-
Colortone Fine Fissured		51	-	0.60(H)	С	36	A2-s1, d0	95	-
Specific Solutions									

Bioguard Plain	38 - 39	87	0.20(L)	E	35	A2-s1, d0	95	ISO 5
Bioguard Acoustic	41	85	0.60(H)	С	36	A2-s1, d0	95	ISO 5
Parafon Hygien	20	82	0.95	А	-	A2-s1, d0	95	ISO 4
Clean Room FL	39	78	0.15	E	36	A2-s1, d0	95	ISO 5
Hydroboard	20	82	0.95	А	22	A1	100	-
Ceramaguard	37	79	0.55(MH)	D	39	A1	100	-

Floating Ceilings

Axiom Canopy C, L, KE, Circle & Curved	25	=<90	Dependant on size and panel infill	N/A	A2-s1. d0	N/A	-	
---	----	------	---------------------------------------	-----	-----------	-----	---	--

Suspension systems

General Applications:

- // Predlude 15 TL & XL²
- // Prelude 24 TLS & XL²
- Prelude 24 Sixty²
- // Prelude 35 XL²
- // System Z (Prelude 24 / Corridor)

Design Options:

Silhouette XL², Interlude HRC XL²

Sustainable Performance:

- Prelude 15 TL & XL²
- // Prelude 24 TLS & XL²
- Prelude 24 Sixty²
- Prelude 35 XL²
- // System Z (Prelude 24 / Corridor)

High Load Performance:

Prelude 24 Sixty²

Plasterboard & Perimeter Solutions:

- Axiom Transitions
- Axiom Profiles
- Axiom Blind Boxes
- Axiom Perimeter Trims

Seismic Performance:

🖉 Seismic Rx

Clean Room Performance:

// Clean Room 24

High Humidity Performance:

Prelude 24 Corrosive Resistant

Long Span Solutions:

Prelude 24 Sixty²







Cradle to Cradle® Design, by nature

Zentia has become the first ceiling tile manufacturer in Europe to achieve Cradle to Cradle[®] certification.



Cradle to Cradle® reframes design as a positive, regenerative force. Our certification helps customers purchase and specify products that are designed for recycling using manufacturing processes which minimise water consumption, adopt renewable energy strategies and acknowledge social responsibility.

Part of a new generation of sustainable and acoustic ceilings, these have been Cradle to Cradle Certified™.



Material health

Every ingredient must be safe and not harmful to health or the environment.

At Zentia we design ceiling products that are safe & healthy for humans and the environment from production to use to reuse.

We know the chemical ingredients of every material in our products, and we continue to innovate and optimise towards safer materials.



Material reutilisation

Designing products made with materials that come from and can safely return to nature or industry. Zentia mineral fibre ceiling tiles are designed for recycling.

Our unique ceiling recycling programme recovers old ceiling tiles from buildings and recycles (upcycles) them into new ceiling tiles in our own manufacturing facilities.

We use up to 5% rapidly renewable materials with recycled content between 30% and 64%, including post-consumer recycled content in the form of newsprint and old ceiling tiles recovered from the market. Mineral fibre ceiling tiles are 100% recyclable and can be safely recycled at the end of their life.



// Renewable energy & carbon management

Envisioning a future in which all manufacturing is powered by 100% clean renewable energy.

Zentia is committed to decreasing the environmental footprint of its operations through energy reduction.

We continue to increase the percentage of renewable energy used in our ceiling tile and suspension system plants and have a strategy and investment programme designed to reduce our use of fossil-fuel based energy.



Water stewdardship

Manage clean water as a precious resource and an essential human right.

Water is crucial to Zentia's operations and we continue to manage our use of water in a responsible and sustainable manner, systematically reducing our consumption of this valuable natural resource.



Social fairness

Conduct business responsibly, respecting the health, safety and rights of people and the planet.

Zentia is actively involved in a number of social projects that impact the local community around its plants.



As a responsible manufacturer we are certified under the ISO 14001 Environmental Management System designed to protect, reduce and ultimately enhance our management of scarce resources and the wider environment.

Ceiling recycling programme



Zentia's Recycling Programme in 3 simple steps:

1. Provide your Zentia contact or our recycling helpline with:

- The name of the project and location, along with the appropriate site contact detai
- Estimated m² to be recycled and estimated date for material collection
- Identification or description of the ceiling tiles and the date they were manufactured
- Date ceiling tiles need to be removed

2. Zentia in conjunction with the appropriate site contact will arrange inspection to confirm acceptability:

- Material inspection by Zentia
- Signing of agreement (that you agree to our 'recycling requirements' above)

If the material is acceptable and you have agreed to our requirements:

Once steps 1 and 2 have been completed a minimum of 48 hours notice is needed to ensure we can arrange the best transport details, with minimal environmental impact



// Gaining ground by reducing waste

There aren't many opportunities to make a meaningful difference. Sometimes it's the little things, multiplied by the efforts of many, which make the biggest impact. That's the idea behind our Ceiling Recycling Programme in the UK and Ireland. By working together we can help preserve our natural resources and reduce environmental impact.

// Don't waste an opportunity

Recycling can be as good for you as it is for the environment. It reduces waste, saves money and is a smart alternative to our dwindling landfill capacity in the UK. With our Ceiling Recycling Programme, you will save money by eliminating rising landfill fees and taxes, along with the cost of skips and transportation. Zentia already make extensive use of recycled material, and because 100% of these recycled tiles can be used within our process, we can provide new ceilings with even higher post-consumer recycled content.

Rethinking recycling

We've made our End-of-Life recycling programme as easy and as accessible as possible.

Simply take down your old ceiling tiles and stack them on pallets. In partnership with your local distributor, we will arrange collection of these and your old tiles will be 100% recycled into new ceiling tiles.

Recycling requirements

Acceptable ceiling tiles

• Zentia branded pulpable wet-felt mineral fibre ceilings dated after January 2000* *Ceiling tiles have the manufacturing date stamped on the back of the tile

Non-acceptable ceiling tiles

- Non-Zentia mineral tiles
- Soft fibre tiles
- Metal or wood based tiles
- Vinyl, metal foil or fabric faced/backed tiles
- Tiles with paint not applied by Zentia
- Tiles that have been installed below or contaminated by asbestos or any other hazardous material

🖊 General

- No wood, metal, plastic or builders debris is acceptable
- No products that are mouldy, wet or cannot be transported in a safe manner
- No product contaminated with any hazardous material or requiring special handling or disposal methods
- Minimum quantities apply and Zentia have the right to decline any project subject to a feasibility assessment

// Transport

- Material must be clean and dry and in the acceptable category above
- Material must be stacked tidily and in a safe manner on 1200x1200 wooden pallets
- All tiles should be stacked squarely on the pallet to maximise stability during transport
- Pallets should be stacked less than 2 metres high
- Pallets must be secured using stretch wrapping or tape bands
- Pallets should be loaded safely onto transport to achieve maximum utilisation and minimise transport costs
- Sufficient space is necessary on site for the safe loading of a 40ft curtain sided lorry
- Special loading or removal circumstances should be discussed with your local Zentia contact or through the helpline: **0800 371849** (UK) **1800 409 002** (RoI)

Charges

// Free of charge collections:

Zentia aims to optimise the use of transport and collection of ceiling tiles will be free of charge.

// Chargeable Collections:

Zentia may apply charges in special circumstances, for example: out of hours collections or multiple collections of small quantities.

Collection charges are available on request, but will always be less than waste disposal and landfill charges. Details available from your local Zentia contact or through the helpline: 0800 371849 (UK) • 1800 409 002 (Rol) • Email recycleyourceilings@zentia.com



Our Internal Technical Sales team offer a free RT calculation service in line with the requirements of BB93 (including separate calculation for SEN specific areas). Based on the Sabine formula and valid for most simple square or rectangular spaces with a level, single or double pitch ceiling / roof, these calculations can provide guidance on the optimum ceilings for your educational spaces .

Please contact us on 0800 371 849 or email enquiries@zentia.com for further details.





In ▶ P
Im ▶ P
Im ▶ P
Im ↓ P
<

zentia.com