

# 'Can they hear you at the back?'



The integration of Soundfield Voice Reinforcement in the classroom is recommended by the DfES as a simple and highly effective method of improving the attention and academic results of pupils and students.



# Soundfield

*Classroom Voice Reinforcement*

Also featuring: • Portable sound reinforcement • Induction loop systems

## ● 'Soundfield' Classroom Voice Reinforcement Systems

Young people spend at least 45% of their school day engaged in active listening activities, with today's classroom serving as a primarily auditory verbal environment.

However, a recent study in the journal of the American Medical Association showed that 14.9% of children aged 6~19 suffer from some degree of hearing impairment, either permanently or temporarily due to illness, infection or allergies.

Studies estimate that 80% of school children will have some form of hearing loss during an academic year and, with the importance of auditory learning in the classroom, the use of technology to enhance listening performance ultimately allows children to learn more efficiently.

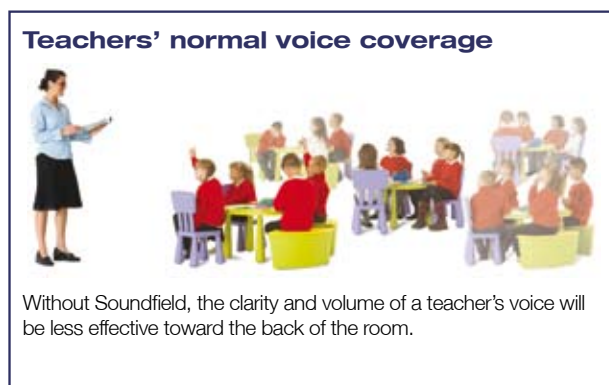
One of the simplest and most effective solutions is an i-ceilings 'Soundfield Voice Reinforcement System'. Functioning as a mini public address system, it features an infrared wireless microphone, receiver, amplifier and either one or two 'i-ceilings Sound Panel' loudspeakers (dependent upon the size of classroom).



• **Thorn Grove Primary School's** SEN inclusion scheme ensures that both its mainstream and hard of hearing pupils benefit from clear, effective communication using i-ceilings Soundfield Systems in all its classrooms.

## ● What is a Soundfield System?

'Soundfield' or a 'Soundfield Voice Reinforcement System' is essentially the integration of a 'mini-PA system' in the classroom.



Under quiet classroom conditions, most teachers have enough natural volume in their voice to communicate effectively with a standard sized class. However, a number of acoustic factors (lively/noisy classes, reverberant room conditions, ambient noise from equipment and outside, hearing difficulties, etc.) can have a significant effect on clear, effective teacher/pupil communication.



The inclusion of a Soundfield System in the classroom will raise the teacher's voice above this ambient noise level, to give even voice coverage throughout the room and without the need to shout or raise one's voice. This will provide significant benefits for teacher/pupil communication and understanding.

# ● The benefits of Soundfield in the classroom

All children benefit from the improved speech clarity of a Soundfield System. Academic improvements are consistently noted in:

- **Task behaviour**
- **Attentiveness**
- **Less repetition required**
- **Improved verbal recognition**
- **Reduced voice strain**
- **Better attendance**
- **Understanding of instructions**

The inclusion of Soundfield Voice Reinforcement in the classroom provides wide ranging benefits not only to pupils and hard of hearing students, but also to teachers and acoustic/architectural designers and specifiers.

## **Pupils**



In addition to the above outstanding benefits, pupils also benefit from:

- More effective deciphering of language in early learning years
- Better understanding of teacher's voice for 'second language' learning
- Assists temporary hearing deficiency, common in early learning years

## **Teachers**



- Improved clarity of voice and understanding
- Reduced voice strain, illness and stress
- Less repetition required
- Assists inclusive teaching for SEN students

## **SEN Students**



- Assists inclusive learning
- Easily integrates with induction loop systems
- Proven learning improvements for pupils with ADHD
- Many children with Down syndrome who have fluctuating conductive hearing loss perceive significantly more speech

## **Specifiers and Installers**



- Unparalleled even sound coverage
- Reduced number of loudspeakers required
- Reduced microphone feedback
- Reduced loudspeaker theft or damage
- Secure wireless signal for privacy rooms

- Teacher wears lightweight infrared wireless microphone



## The i-ceilings Soundfield Solution

In its simplest form, a Soundfield System consists of the following components:

- Wireless microphone worn by the teacher
- Wireless microphone receiver
- Amplifier
- Loudspeakers
- Connection cables

The i-ceilings Soundfield Solution benefits from further unique component features to provide what we truly believe is the most advanced and effective system on the market.

### The unique i-ceilings Soundfield System features:

#### i-ceilings Sound Panel Loudspeakers

Our 'i-ceilings Sound Panel' is a unique loudspeaker which fits into a suspended ceiling in the same manner as a standard ceiling tile.

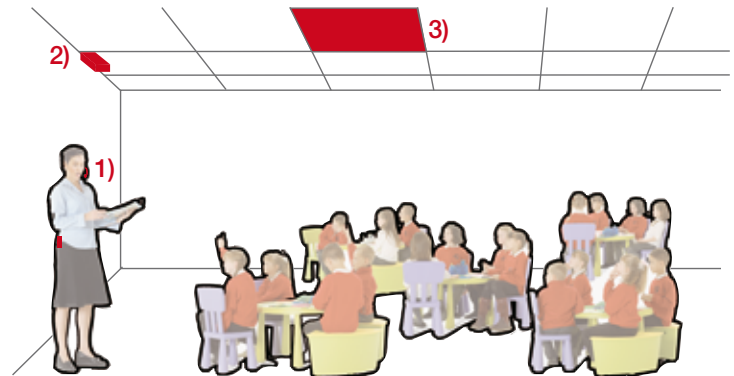
This revolutionary Sound Panel loudspeaker provides unparalleled levels of even sound coverage, ensuring all students hear an equal volume level of the teacher's voice. Furthermore, i-ceilings panels are virtually unidentifiable in the ceiling ensuring aesthetic consistency and greatly reducing any problems of loudspeaker theft or vandalism.

#### Infrared Wireless Microphone Technology

The i-ceilings Soundfield System also benefits from the use of an 'infrared' microphone system.

Many systems on the market use 'RF' (radio frequency) wireless microphone systems, which have many operational limitations such as the number of available frequency channels, license costs and signal overspill.

Our IR wireless system overcomes these limitations, being license-free and, by using light to transmit the microphone signal (just like your TV remote control), the signal cannot 'overspill' into adjoining classrooms; providing the ideal multi-room solution.



- 1) Teacher-worn Infrared Microphone
- 2) Infrared Microphone Receiver
- 3) i-ceilings unique Sound Panel Loudspeaker and Integrated Amplifier



## ● i-ceilings 'in-ceiling' Soundfield Solutions

Our flagship i-ceilings infrared Soundfield systems are arguably the most technically advanced & acoustically effective systems in the market.

### System benefits:

- Unobtrusive, yet highly effective voice reinforcement in the classroom
- Unidentifiable loudspeaker solution reduces damage or loss due to theft or vandalism
- Infrared wireless microphone technology allows unlimited adjacent room systems without licensing issues
- Easily integrated with other classroom/teaching technologies such as induction loops, personal FM hearing assistance systems, interactive whiteboards, laptops, etc,...

### ● i-ceilings/infrared Soundfield – **PACK A**

For classroom areas up to 60m<sup>2</sup>

- 1 x CS4000ME/AMP Amplified i-ceilings Sound Panel
- 1 x APA/APL CD/MP3/Laptop Input Wallplate
- 1 x IWM-302 Infrared Beltpack Transmitter
- 1 x IT-10+ Infrared Microphone/Emitter\*
- 2 x IS-20A Infrared Sensors
- 1 x HC-33 Drop-in Charger for IWM-302

...plus connecting cables, equipment support tray, safety clip & wire, Transmitter batteries and manuals



### ● i-ceilings/infrared Soundfield – **PACK B**

For classroom areas up to 120m<sup>2</sup>

- 1 x CS4000ME/AMP Amplified i-ceilings Sound Panel
- 1 x CS4000ME i-ceilings Sound Panel (Slave)
- 1 x APA/APL CD/MP3/Laptop Input Wallplate
- 1 x IWM-302 Infrared Beltpack Transmitter
- 1 x IT-10+ Infrared Microphone/Emitter\*
- 2 x IS-20A Infrared Sensors
- 1 x HC-33 Drop-in Charger for IWM-302

...plus connecting cables, equipment support tray, safety clips & wires, Transmitter batteries and manuals



### ● i-ceilings/infrared Soundfield – **PACK C**

For classroom areas up to 60m<sup>2</sup> - Provides high performance audio/music capabilities

- 1 x PRO ME/AMP Amplified i-ceilings PRO Sound Panel
- 1 x APA/APL CD/MP3/Laptop Input Wallplate
- 1 x IWM-302 Infrared Beltpack Transmitter
- 1 x IT-10+ Infrared Microphone/Emitter\*
- 2 x IS-20A Infrared Sensors
- 1 x HC-33 Drop-in Charger for IWM-302

...plus connecting cables, equipment support tray, safety clip & wire, Transmitter batteries and manuals



### \*NB: infrared transmitters and microphones:

These Soundfield Packs feature the IWM-302 Beltpack & IT-10+ Infrared Tieclip Microphone as standard. A choice of headset, collar-worn or handheld microphone options are also available.



## ● 'Surface-mount' Soundfield Solutions

Though much of the success of our Soundfield systems has been based on our unique i-ceilings Sound Panel Loudspeakers, there are now an increasing number of systems being installed into classrooms which do not feature a suspended ceiling.

Our Packs F & G have been developed for either wall-mounting (PACK F) or surface mounting to a solid or plasterboard ceiling (PACK G). Both systems feature our own UK designed and built IRX Wallmount Integrated Amplifier/Infrared Receiver, developed specifically for Soundfield classroom voice reinforcement.

Designed to be completely safe and child-friendly, the IRX features 20W amplifier, infrared wireless microphone technology, microphone & line inputs (for integration of laptop, MP3, DVD, etc) and level/tone control, whilst remaining extremely tamper-proof against potential 'wandering hands'.



### ● Wallmount Loudspeaker/Infrared Soundfield – **PACK F**

For classroom areas up to 60m<sup>2</sup>

- 1 x IRX Wallmount Amplifier/IR Receiver
- 4 x FBT Project 315WT Wallmount Loudspeakers
- 1 x IWM-302 Infrared Belt Pack Transmitter
- 1 x IT-10+ Infrared Emitter/Microphone\*
- 2 x IS-20A Infrared Sensors
- 1 x HC-33 Charger for IWM-302

...plus connecting cables, safety clips & wires, Transmitter batteries and manuals



### ● Surface-mount i-ceilings/Infrared Soundfield – **PACK G**

For classroom areas up to 60m<sup>2</sup>

- 1 x IRX Wallmount Amplifier/IR Receiver
- 1 x CS4500 Surface-mount i-ceilings Sound Panel Loudspeaker
- 1 x IWM-302 Infrared Belt Pack Transmitter
- 1 x IT-10+ Infrared Emitter/Microphone\*
- 2 x IS-20A Infrared Sensors
- 1 x HC-33 Charger for IWM-302

...plus connecting cables, safety clip & wire, Transmitter batteries and manuals



#### \*NB: infrared transmitters and microphones:

These Soundfield Packs feature the IWM-302 Beltpack & IT-10+ Infrared Tieclip Microphone as standard. A choice of headset, collar-worn or handheld microphone options are also available.



## ● Portable Wireless Sound Reinforcement Systems

Together with our full range of permanent installation Soundfield systems, we also provide a complete range of portable PA systems, to provide wireless voice and music reinforcement for coverage of 10 to well over 100 people!

These systems are ideal for use in classrooms, school halls, playgrounds and sports days - and are even safe for poolside use.

### ● **Focus 500** Infrared 30W Compact Portable PA System

Effectively functioning as a portable/temporary Soundfield System, our best selling Focus 500 has to be one of the most compact, lightweight, full-function, portable wireless PA systems there is!

#### main features:

- Truly wireless! Mains and rechargeable battery operation
- Choice of infrared wireless microphone options
- 2 channel microphone receiver
- Built-in CD player, 30W power amplifier & full-range loudspeaker
- Microphone & line inputs
- Tripod mountable



#### VHF & UHF Portable Wireless PA Systems also available:



● **Smart 300** VHF (10W)



● **Focus 505** UHF (30W)



● **Challenger 1000**  
UHF (50W)



● **Victory 2000**  
UHF (75W)

Our portable PA systems are available with a full range of microphone/transmitter options including handheld, tieclip, collar and head worn.  
**(Please Note: Focus 500 Infrared Model is not suitable for outdoor use. For outdoor applications, please specify UHF models).**

## ● Induction Loop Systems

Our full range of portable and permanent installation, Audio-Frequency Induction Loop Systems (which can easily be connected to our full range of Soundfield Systems) allow hearing-impaired people to hear more clearly, by broadcasting an electromagnetic signal which can be picked up by most hearing aids when switched to their 'T' or 'MT' position.

This means that the 'audio source' (for example the teacher's voice via the microphone, or music from MP3) will be amplified and received by the hearing aid for greater clarity by the hearing impaired.

The inclusion of Induction Loop Systems - in the teaching environment and public areas - provides significant benefits to the hearing impaired and supports the British Standard 8300 and Disability Discrimination Act codes of practice to meet the needs of and combat discrimination against disabled people.



## Supporting evidence on the effectiveness of Soundfield in the Classroom

Introduced into the classroom over the past five years, Soundfield is still a relatively new concept here in Europe.

However, the publication of the DfES' specification on acoustic design in schools - 'Building Bulletin 93' - recommends Soundfield as a simple and effective solution to evenly dispersed voice coverage in the classroom. Since its publication, the application of Soundfield in UK classrooms has increased exponentially year on year, with many thousands of classrooms throughout the UK now benefitting from its inclusion.

**Furthermore, studies into Soundfield's effectiveness in a wide range of educational and acoustic applications continue to provide extremely positive results...**

- **BUILDING BULLETIN '93:** Acoustic Design of Schools
- **SAM WISE:** Acoustic Consultant and Principal Contributor to BB'93
- **JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION**
- **RUSSELL BRETT:** Contributor to BB'93
- **The MARRS Project:** Mainstream Amplification Resource Room Study
- **Improving the classroom listening skills of children with Down syndrome by using Soundfield amplification:** Department of speech and languages, University of Canterbury, NZ
- **Classroom Amplification to Enhance Student Performance:** Neil J.DiSarno, Melissa Schowalter & Patricia Grassa

Copies of these reports can be read in full at:  
[www.soundfield.uk.com/background\\_studies.htm](http://www.soundfield.uk.com/background_studies.htm)

## Funding systems in your classroom

In striving to plan successful academic programmes, teachers, architects, audio designers and installers need to consider the sheer numbers of students who may not hear well on a given school day.

With the backing of DfES legislation, the public and private funding of organisations such as LEAs, Government Revenue Support Grants, County Councils, Lottery Grants, New Deals for Schools and PTAs, Soundfield Voice Reinforcement Systems are an easy, cost effective solution, ensuring all students listen and learn productively throughout the school year.

Additional funding may also be available from schemes including:

- Schools Access Initiative
- The SEN Small Programme Fund
- The Deaf Childrens' Communication Aid Project
- Local Education Partnerships

For further information on available funding support, go to: [www.soundfield.uk.com/funding.htm](http://www.soundfield.uk.com/funding.htm)



For more information, visit our website today; the industry recognised site for information and advice on classroom voice reinforcement and the recommendations of the DfES' Building Bulletin '93.

[www.soundfield.uk.com](http://www.soundfield.uk.com)



Soundfield provides clear and consistent voice coverage throughout the whole classroom, without the teacher needing to shout or raise their voice; ensuring true benefits for teacher/pupil communication and understanding.