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ANC | ACOUSTICS &
NOISE
CONSULTANTS

ACOUSTIC AWARDS

2015

LEADING THE
WAY IN NOISE
AND ACOUSTICS



ACOUSTIC AWARDS 2015

The Association of Noise Consultants (ANC) awards promote and recognise excellence among UK acoustic consultants. The Awards look for examples of work that display innovation, and originality in acoustic design or approach to a particular project. Work must have been undertaken in the last two years and the consultancy must be in operating in the UK although the project may be elsewhere.

This year the Awards are:



37 entries were reduced to a shortlist of 15 across the five categories and all those entrants requested to make a brief presentation on their project immediately before the Awards ceremony. An award was made for the best presentation by one of the shortlisted projects and this was determined by those attending.

The judging panels were made up of representatives from other professions, academics, consultants and other interest groups.

The judges included:

Sue Bird ANC President (chair of judging panels)	Les Fothergill ANC Honorary Member	James Talbot Cambridge University
Alastair Blyth Architect	Lisa Lavia Noise Abatement Society	David Waddington Salford University
Joe Cilia Finishes & Interiors Sector	Andy Moorhouse Salford University	And sponsor representatives.
Stephen Dance London South Bank University	Howard Price CIEH	

The Judges noted that they had not visited any of the projects or heard the results and so their decision is based on review of paperwork only. In a number of cases the projects are not built and so it is not possible to validate the results.



ARCHITECTURAL ACOUSTICS : COMMERCIAL BUILDINGS



Tyneside Cinema café bar *Apex Acoustics*

The developers sought to create an acoustic environment that had never been achieved elsewhere. The concept was for a café bar that contains a film screening area and simultaneously achieves acoustic conditions that enable film-watchers to enjoy the film without excessive intrusion of café bar noise; café bar patrons to enjoy a lively atmosphere enhanced by the film; and the ability to flexibly use both areas as one space.

This may be a small environment but it presents a significant acoustic challenge. This is a well explained project with in some ways a deceptively simple solution for a difficult problem. The project is more complex than merely placing a small screening area next to a bar, it has to be flexible enough to use the space in a variety of ways and as one open space and this project demonstrates that flexibility. This type of solution and

approach could be adopted in other building design contexts where there is an adjacent conflict in acoustic requirements at the same time as a fluid space.

The judges were interested to see that the venue frequently screen silent films with the curtains open, as they find that the big screen helps draw in passing trade. This was one of the few entries that was not an office space which helped it stand out from a very competitive field. The judges considered it was a challenging location in which to achieve good acoustics. This was the first time they had seen TripAdvisor used to validate the acoustic performance of a building!



HIGHLY COMMENDED

The Hub, Sky, London *Arup*

The consultants claim 'The Hub redefines the open plan office' by creating a high ceiling, spacious and flexible working environment. Workstations, breakout spaces, a restaurant and a café all operate within the same volume without noise disturbance to each other and without disruption from regularly passing aircraft. All these factors mark this out as innovative, original and a pioneering and inspirational acoustic design.

With office areas up to 13m in height, overlooking a central atrium containing a popular café, the team have achieved the key acoustic challenge to facilitate a flexible working environment without disturbance between the different activities. The fact that this was all under the under the flight path from Heathrow is even more commendable. This was achieved by strategic placement of sound absorbing finishes, optimised in key areas by the auralisation of different options. They have understood that different tasks require different spaces, such as by providing privacy pods for concentrated work.

COMMENDED

Cathedral Court, Birmingham *Cundall*

Refurbishment of an 'ordinary' office space into a truly exceptional, inspirational and collaborative workplace was key to this project's obtaining commended status. The thoughtful way in which the lighting and acoustic control has been integrated to provide a holistic space is borne out in a Great Place To Work survey showing a significant increase in staff satisfaction. The results are way above industry benchmarks, and will hopefully inspire others to realise the potential that good design can offer.

The key design features were: excellent acoustic design, combining the ability to have privacy between adjacent teams, in addition to collaboration within teams, all in an open plan environment; low energy design of ventilation and lighting; all buildings services on show; and coordination between lighting, acoustic control and ventilation. Achieving the best "look and feel" of the workspace was even more important than occupancy density.

ARCHITECTURAL ACOUSTICS : EDUCATION BUILDINGS



Wallscourt Farm Academy, Bristol *Mach Acoustics*

Wallscourt Farm Academy is seen to be a fine example of how to create an inspirational educational environment through an understanding of the requirements and characteristics of an open plan space. These principles have been developed from attending and observing the behaviour and workings of various different open plan schools, as well as through data analysis from on-site measurements and CATT Acoustics models.

Years of research and project experience have enabled the consultants to develop a list of design criteria for the acoustics of open plan spaces. Working closely with the project architect, they were able to successfully apply these principles to produce a highly functional and usable space. The removal of walls meant that the consultants focused on STI as a key design parameter,

and on communication as their tool to ensure that the open plan spaces are correctly designed. Their logic being that if the acoustic design is not bought into, it will not be implemented, resulting in a space that is not fit for purpose.

The judges had no hesitation in giving the award to this project as it was both innovative and different and most importantly identified solutions that could be used elsewhere. The judges were impressed that the consultant was keeping in touch with the school and so continuing to learn how the building functions over the next few years.



HIGHLY COMMENDED

Notre Dame Catholic College, Liverpool *SRL*

The pioneering design in this project challenges the convention that cost effective school buildings have to be plain, uninspiring, cellular boxes. The acoustic challenges were vast; limited budget, noisy site and massive enclosed volume – much of which would be open and require significant acoustic treatment. By focussing on the end user needs and cost effective innovative solutions the end product meets all of the acoustic aims, users' needs and will be an inspiration to pupils for many years to come

The end user and design team were educated on the acoustic constraints of the emerging design and the concept of grading spaces according to the acoustic function. The resulting building has been a huge success acoustically and the judges noted the positive feedback and performance substantiation which assured them that this project had been successful in achieving its goals.

COMMENDED

Sandwell College, Central Sixth campus *Arup*

The project reactivated a costly local authority asset into a new sixth form college for the successful Sandwell College. The result has brought new life and vigour to a building that was previously underutilised and poorly attended by the local community. The project also has a good sustainability story, because rather than finding a new site to build a whole new building, the College and Local authority were able to convert an underused property into a new sixth form college.

The judges liked the use of classroom pods which are a bespoke design and made this different from similar projects. This was a challenging refurbishment that required understanding of the College's education strategy and their teaching methods. The technical design necessitated a detailed appreciation of the existing building fabric and how this may or may not benefit the teaching environment. The transformation into educational use was a sustainable solution at a fraction of the cost and quantity of building materials that would have otherwise been necessary to construct a new school.

ENVIRONMENTAL NOISE



Numerical Environmental Noise Modelling *Hoare Lea Acoustics*

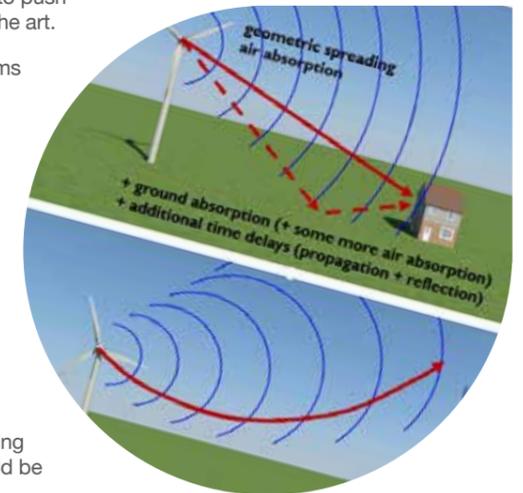
The project comprises original, self-funded research to better understand potential shortcomings of noise propagation prediction methods currently applied across the UK. These current methods are typically based around empirical observations and engineering assumptions. This project draws on the knowledge of a team of experienced environmental acoustic engineers combined with expertise in applied research and numerical modelling from two European universities to allow predictions of environmental noise propagation that are not possible with current engineering methods. Importantly, however, the numerical model results can be directly compared with currently used standards and methods of calculation.

The judges agreed that this project is an excellent example of UK

consultants funding research and development, which draws on the skills and knowledge of academics, and applies this in a practical and innovative new way in order to push forward the current state of the art.

It was the clear winner in terms of innovation and originality, as well as being both pioneering and inspirational, and making a significant contribution to advancing acoustics and improving public perception. The work should also contribute to genuine sustainability if it enables wind farm proposals to be better assessed, and in many other situations where modelling long distance propagation in varying atmospheric conditions would be

a significant gain. It also scores well on complexity and makes a genuine contribution to the industry.



HIGHLY COMMENDED

BAE Birtley, Gateshead *WSP | Parsons Brinkerhoff*

A planning application for the development of 293 residential dwellings on the BAE Systems' site included a noise assessment undertaken by another consultant. A neighbouring industrial operator had submitted an objection partly on noise grounds and consultants acting for them highlighted the need for mitigation of the impulsive noise associated with their operations. The EA and Local Council also objected on noise grounds, so a new approach was required.

Overcoming the resistance of neighbouring industry and demonstrating that the businesses around the site could continue successfully, marks out this project for its contribution to awareness of how good acoustics can make a difference. The commitment to a multi-agency approach was applauded by the judges noting that the applicant, local authority, government agency and neighbour all worked together, recognising the value and need for an holistic approach.

Although not as innovative as some entries this is a good example of collaborative working to make new housing more compatible with retaining existing industry.

COMMENDED

Albert Wharf, Hammersmith *MLM Acoustics*

The project proposals include around 230 homes, office and commercial spaces above a working concrete batching plant which includes both road and barge deliveries. This kind of project is globally unique, with noise impact being one of the most challenging issues. The comprehensive assessment and mitigation strategy for this project presented a solution to potentially significant acoustic conflicts in the development proposals, which sought to integrate significant noise generating industrial processes, with noise-sensitive end users.

While not primarily innovative this is a project that is easily communicable in terms of public perception. The judges had praise for the commitment and level of work involved to support the findings, and recognition of the value of working with the local authority and other stakeholders. As the building has not yet started it is not possible to validate the results.

SOUND INSULATION



St James Centre, Jersey

Hoare Lea Acoustics

This was an ambitious project where heritage and acoustics had to be combined. The St James Centre is the new home for Youth Service and Jersey Youth FM Radio and the design required the separation of amplified music spaces from a performance venue within a common listed building structure.

The element of the project considered for the award is the design and construction of two music rehearsal rooms, one recording studio and one radio broadcasting room onto the balcony of the 19th Century St James Church. The ground floor was to be refurbished as a 179-seat multi-purpose auditorium with the apse as a main stage. The Client had very high expectations for sound insulation performance between all rooms, yet in delivering the acoustic design to achieve such expectations the listed balcony's timber panelling, arched

ceilings and steel columns all had to remain untouched and exposed.

The way the consultant was prepared to work outside the usual design recommendations to achieve subjective and therefore potentially risky targets was noted by the judges. The use of auralisation to establish client expectations whilst not completely novel, has been implemented in an interesting way. A very high standard of sound insulation was required, especially at low frequencies and the consultants persuaded the client to accept a more realistic target by simulated listening demonstration.

The building also provided an opportunity in which public perception of good acoustics could

be demonstrated and this was a major factor in the judges' decision to select this as the winner.



HIGHLY COMMENDED

Everyman Cinemas, Birmingham

RBA Acoustics

Even in a new-build scenario, the inherently high sound insulation performance requirements caused by positioning a high noise generating cinema directly adjacent to an extremely sensitive BBC studio would represent a challenge. However this project exacerbated the challenge by having an existing shell performance poor at low frequencies necessitating substantial low frequency sound insulation improvements to achieve BBC criteria; an extremely complex box-within-box design due to the loading limitations and height constraints associated with the existing shell; and last minute VE.

The innovative solutions and difficulties in construction meant this project stood out. The Judges' considered it was very tricky to improve existing constructions so substantially and were impressed by the good details provided both of the technical design and the attenuations achieved. Accuracy of design at low frequency also made it distinctive. To achieve a satisfactory solution within all the constraints is impressive.

COMMENDED

North West Cambridge Development

AECOM

This 150 hectare site includes affordable homes for University and College staff, private homes, accommodation for post-graduates, 100,000 sqm of academic and commercial research space, a primary school, community centre, hotel, senior living, parklands, playing fields, sustainable transport and a cycle network. The noise ingress must be suitably controlled to keep out nearby motorway and local traffic noise while at the same time allowing sufficient ventilation to provide reasonable thermal comfort and control potential overheating.

In an area of high traffic where external noise levels will increase over time as the site is completed, the judges noted this project faced a number of challenges not least of which was the number of different construction companies involved and the very demanding internal sound insulation target. The sound insulation between dwellings needed to follow bespoke designs to achieve the maximum number of code for sustainable homes credits for improved performance above the Building Regulation requirements.

VIBRATION



Advisory Role to Gym Group

Hoare Lea Acoustics

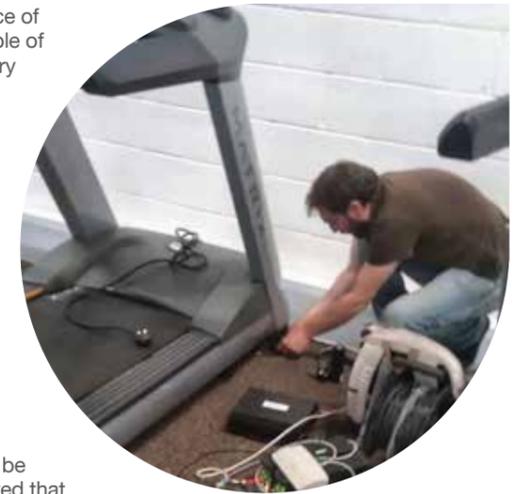
The judges liked the way this combined consultancy experience with academic research. It set out a process for the future that had broad use and is a clever way of dealing with difficult structures. This work represents acoustic consultancy at its best. It deals with the problem of assessing potential locations for commercial gym facilities: a 'low-profile' problem but one that deals with complex vibro-acoustic behaviour, and which can have significant economic and social consequences for the people concerned.

This work demonstrates a significant advancement in analysis methods for the assessment and prediction of vibro-acoustic sources within existing structures, with the advantage that the technique can be extended to many other fields of application. The project summarises a new method for the prediction of structure borne sound and vibration generated by new

sources within existing buildings in scenarios where source items cannot be directly tested in the receiving structure.

A technically challenging piece of work, it is an excellent example of collaboration between industry and academia, which has applied current research and experience from other industries. In recognising the problem complexity, and dealing with this in a comprehensive but practicable manner, the work has progressed beyond standardised guidance to develop a novel approach that has potential use beyond the immediate problem. The Judges' considered this is a practical, validated solution that would be of wide benefit and appreciated that the method could also be applied to many other applications. As such the

economic benefit is notable, and a simple replicable test could replace significant more usual testing.



HIGHLY COMMENDED

Hertsmere House, Canary Wharf

WSP | Parsons Brinckerhoff

The consultants were commissioned to investigate the potential effects of both tactile vibration and ground-borne re-radiated sound from underground trains on the future occupants of the building. The source of the vibration was the Crossrail line that is not yet operational.

Collaboration with the structural team and use of their modelling was a distinctive element of this project. The consultants took an innovative approach to assessment by using three-dimensional finite difference modelling in combination with their in-house knowledge based on measurement data and empirical approaches. The judges considered that use of the existing FE model to predict transmission through the building is impressive. They noted the use of experience with other projects to predict levels from Crossrail and the way the model was validated as far as possible.

As the building is not yet completed and Crossrail is not operating it is not possible to confirm the claims made for it.

COMMENDED

Crossrail, Eastern Tunnels

SRL

The Crossrail project is unusual in that it is not often that tunnels are bored under thousands of noise sensitive buildings. Following lessons learned on HS1, where residents complained about noise from the Temporary Construction Railway (TCR), stringent criteria were placed on Crossrail. The project criteria required a methodology to predict the impact of the proposed TCR and then validation of the prediction model through measurement. Although traditional methodologies successfully predict vibration and ground-borne noise in buildings near surface and underground railways, there was one key piece of the jigsaw missing: the level of vibration in the tunnel.

The judges considered this was a particularly innovative way to identify areas of risk from the TCR. Without a good method in existence, the team combined known theory with new data to establish a way of working out which properties would likely be at risk without extensive testing. They developed an effective rail pad system to solve the problem cheaply and easily in higher risk zones. The lack of complaints demonstrated the effectiveness of this well rounded package.

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