



ACOUSTIC AWARDS
2017

ACOUSTIC AWARDS 2017

ANC members provide consultancy advice in all areas of acoustics, noise and vibration to support the built environment, and transportation and entertainment sectors with innovation and best practice. Their expertise creates usable environments from the most challenging sites. Members also aid the well-being and comfort of building-users across the whole spectrum of use, in public, private and commercial places.

The ANC awards highlight the unique skills of our UK-based acoustic and noise professionals, and the dynamic and diverse nature of the industry overall, to inspire the next generation of acoustic consultants.

These accolades demonstrate excellence among our members in addressing challenges across the nation and around the world – championing innovation and originality and showcasing the significance of a profession which blends art and science to transformational effect.

This year the Awards categories are:

- **Architectural Acoustics:** Commercial Buildings (sponsored by H & H Acoustic Technologies),
- **Architectural Acoustics:** Education Buildings (sponsored by Ecophon),
- **Environmental Noise** (sponsored by ANV Measurement Systems)
- **Smaller Projects** (sponsored by Bruel & Kjaer),
- **Vibration** (sponsored by Pliteq)

The 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 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.

The judging panels were made up of representatives from other professions, academics, and consultants as well as the sponsor for each category. Any conflicts of interest were declared

Chair of judging panels

Sue Bird, ANC Honorary Member

Commercial Buildings

Joe Cilia, Finishes & Interiors Sector
Andy Moorhouse, Salford University

Education Buildings

Claire Barton, Haverstock Associates
Stephen Dance, London South Bank University

Environmental Noise

Stephen Turner, ST Acoustics
Somayya Yaqub, LB Hammersmith & Fulham

Smaller Projects

Phil Dunbavin, PDA
John Pritchard, Derby University

Vibration

Tom Brodowski, Noise & Vibration Engineering
David Waddington, Salford University

And sponsor representatives

The Judges have 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 which has in some cases influenced the final decision. Entrants are reminded to explain the unique features in their submission as decisions can only be made on the information provided.

Brüel & Kjær 
BEYOND MEASURE


ANV Measurement Systems

Ecophon 
SAINT-GOBAIN
A SOUND EFFECT ON PEOPLE


H&H Acoustic Technologies


PLITEQ
It's not magic, it's engineering.™

Cover photo: © Tom Bright

Commercial Buildings

WINNER

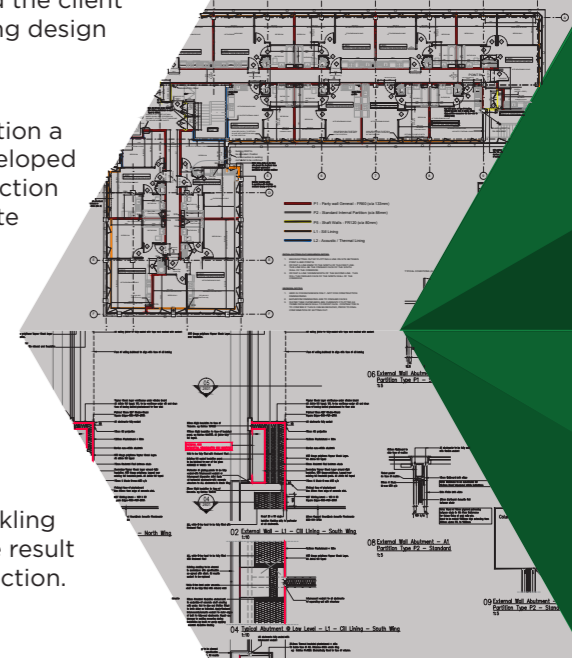
Hoare Lea

Hanover House, Reading

Conversion of this former office building to affordable private residential with minimum internal areas for living standards was only financially viable if the thickness of the Part E compliant party wall construction was kept to no more than 135mm. The consultants believe this to be an unprecedented technical brief for a residential development. They convinced the client that risks could be mitigated by use of pioneering engineering design tools and a collaborative approach.

The project features a bespoke drywall system, and through innovative design, reliable prediction software and collaboration a partition system as thin as the length of an iPhone5 was developed to meet the performance standards. As the partition construction had never been tested before, the consultants had to estimate performance and mitigate the risks associated with flanking and quality of workmanship. There was no built-in tolerance or design margin. The performance of the partition was estimated by an in-depth review of similar tested partition systems and by predictions using in-house sound insulation prediction software which is based on statistical energy analysis.

The judges were impressed that in a field where a standard method is the obvious solution, the consultants had worked with the construction side demonstrating innovation and tackling complexity. This was a very neat solution which achieved the result and must have involved flawless onsite monitoring and inspection.



HIGHLY COMMENDED:

Sandy Brown Associates

YouTube Space, St Pancras, London

A project involving the reconfiguration of two floors of an office building into specially created studio and editing space where YouTubers and vloggers can learn and connect. The consultants were at the centre of a project where an attentive working style had to be provided and the expectations from the client and design team were high. By their nature very high acoustic performance was required with the two primary studios being horizontally adjacent, creating a multi-functional space while being able to be used simultaneously for recording.

As the architect commented "Sandy Brown Associates provided timely expert advice which helped steer the design at crucial points and kept the acoustic performance at the top of the agenda. The success of their approach is demonstrated in the performance of the completed space."

The judges recognised this was a difficult and challenging brief with skilful application of known techniques. The innovation came through putting these together and resulted in a project which not only met but exceeded expectations.

COMMENDED:

SRL Technical Services

Dubai Opera House – mechanical services

This project is one of the few world class music venues created and so acousticians rarely get the opportunity to work on them. The auditorium acousticians were Sandy Brown Associates who set all the sound insulation requirements for the building. SRL were employed by the main contractor and M&E subcontractor on this high profile, prestige project with a budget to match.

It is also acoustically special as the specification contained very onerous requirements, such as achieving NR15 within the main auditorium with all the services operating. The M&E design presented some challenges, which needed to be addressed to meet the necessary acoustic performance. An example of this was that noise data for selected products was limited and one supplier was unable to show their product could work. During regular site visits, the consultants identified issues such as ducts being rigidly fixed to the walls of a riser although the specification stipulated isolated connections. Despite the challenges faced, they were able to predict the re-radiated noise within the auditorium and ensure that the very low noise criterion was met.

The judges observed that this project demonstrated complexity throughout, as well as showing a high level of consultancy in guiding the client to a successful conclusion. Commended status is recognition that the entry relates to the one element of the acoustics consultancy on this impressive project.

Education Buildings

WINNER

Sandy Brown Associates

New Adelphi Building, University of Salford

A new performing arts building, which brings many disciplines under one roof. The consultants provided design advice on all architectural acoustics, working with the design team and client to accommodate all proposed spaces within the building, while still providing high levels of sound insulation between the spaces and adequately controlling noise egress from performance and rehearsal spaces. Auralisation of airborne sound insulation for the music/drama spaces was used to demonstrate the targeted standards to the client, using measurements from band rehearsals and music lessons at the university.

The judges noted this was a large project with complex sound insulation requirements. It had highly elegant solutions internally, complex acoustic detailing and displayed integrated architecture and acoustic design. They were impressed by the use of a box within a box design and that recording studios, music and drama spaces had been provided in a location so close to the railway.

The building houses many different performing arts spaces. The majority require low background noise levels and generate high sound levels. It also forms an entrance from the railway station into the campus and is a cut-through at lower levels. The A6 main road is 130m south of the site and Salford Crescent station is 60m west.

The architects, Stride Treglown, said: "The acoustic consultancy worked well as part of a cross functional design team and their knowledge and experience of the other design disciplines was helpful to the development of the overall design. The acoustic design of the building enabled the multi-use building to function as intended."



Photos: © Tom Bright

Environmental Noise

WINNER

Apex Acoustics

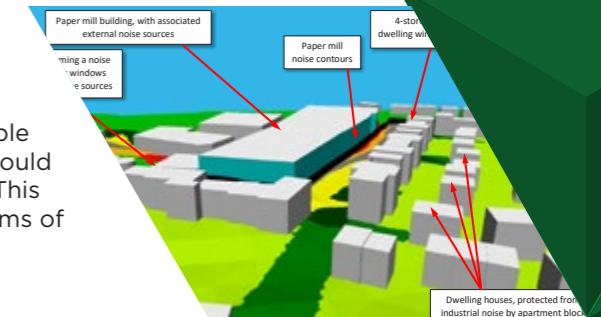
United House, Swanley, Kent

A residential site affected by noise from the adjacent paper mill as well road and rail traffic, where the consultants worked with the design team on an innovative acoustic design to achieve planning permission. By prioritising acoustic considerations throughout the stages of the project, they developed an approach that can be applied to other sites affected by similar noise issues.

A previous application by the developer for this site had been refused so the consultants approached the project with the aim of achieving a good acoustic design, aware that this concept underlies the ProPG which had yet to be published at the time this was completed. As well as modelling and measuring, this is a complex design project and used features such as windows on the ends of the building that are cranked by extending the building envelope so they have no line of sight to the industrial noise source.

The developer commented: "Apex Acoustics took an entirely fresh approach to addressing noise issues and managed to get both the paper mill and local authority on board. Apex also advised us on the ventilation and overheating risks associated with acoustics - we will definitely take this on board for consideration as the detailed design progresses".

The judges felt this was a good example of making a site viable for residential development and showed how the two sides could work together to achieve a mutually acceptable conclusion. This was a reminder of how to approach such projects both in terms of acoustic design and working with all the parties concerned.



HIGHLY COMMENDED:

Adrian James Acoustics

Britten Building, Gresham's School, Norfolk

A very high level building with excellent acoustics provided within a limited budget. It far exceeds the standards in DfE exemplar designs and building bulletins through close collaboration between the client, project manager, architect and acousticians from the start.

The consultants undertook regular site visits during the construction phase, enabling issues to be resolved early on without the need for expensive remedial work. They developed bespoke details to meet enhanced sound insulation criteria using lightweight constructions which were only possible due to their early input to the layout. Acoustically critical spaces were located on the ground floor, utilising a fully floated floor construction consisting of structural screeds on resilient bearers for use as required.

The judges were impressed by the detailing and high standards of acoustic design, and the on-site inspections and discussions held at an early stage to understand the requirements and aspirations of the teaching staff and students. The head of music stated: "This is the most flexible music recital room that I have ever worked in, and the practice and teaching rooms are the best out of any school or music conservatoire that I know."

COMMENDED:

Pace Consult

University of Warwick, The Oculus Building

An inter-disciplinary, two floor building with two lecture theatres, 12 teaching spaces, an open plan learning space under a wooden roof and a double height atrium. An important concept during the design was the use of natural light which penetrates across a double height glazed window, whilst the state of the art wooden roof gives a special character to the building. These peculiarities created different acoustic challenges.

The judges observed that the consultants had produced innovative solutions whilst respecting the architectural features. They noted that control of reverberation time was a factor during the whole design process and that working closely with the architect and main contractor had helped achieve this. The extensive use of modelling to address the different challenges was recognised

HIGHLY COMMENDED:

Southdowns Environmental Consultants

Ministry of Defence Land Ranges

There is a public perception that activities on MoD Land Ranges can produce noise and vibration that may be damaging to property through airborne or seismic shock waves. This investigation required the continuous monitoring of sound pressure, air overpressure and groundborne vibration at multiple locations over 6 months. Pioneering and innovative approaches to continuous data capture, processing and assessment were required and, in collaboration with an equipment supplier, system hardware and software capability was designed and tested and then deployed.

This project is unusually broad requiring innovative, use of and trialling of unproven measurement and telecommunications technologies and techniques; rigorous testing of bespoke systems, monitoring within highly sensitised communities; capturing high quality sound, air over pressure and groundborne vibration signals and measurement metrics.

The judges were very interested in this project which was innovative in its use of technology. They were not sure how much consultancy was involved and would have liked to know more about how the project was managed and controlled and how the results can be used.

COMMENDED:

AECOM

Thames Tideway Tunnel

This issue of environmental noise and vibration impacts during the construction phase to upgrade London's sewerage system, was under intense scrutiny during the public examination and was seen as weighing against consent for the development. Noise was therefore one of the foremost environmental constraints and the consultants provided acoustic services focussing on environmental modelling and compliance management. They also volunteered as STEMNET Ambassadors including delivering an interactive session on Bringing Sound to Life.

The judges would like to have known more details about the monitoring undertaken and the consultancy provided. With the project data providing the source of a paper at Internoise 2016 on the different methods for calculation of typical sound levels from long-term monitoring data, it would have been interesting to know more about how the information was now being used.

Smaller Projects

WINNER

Apex Acoustics

TupTup Palace, Newcastle

This project illustrates a ground-breaking approach to solving the problem of noise from nightclub smoking areas. The modelling techniques, solutions to controlling noise break out through doors, and control of noise from patrons in the smoking area have the potential for wide application in addressing this perpetual problem. The consultants took room acoustics modelling methods and applied them to environmental noise propagation, appreciating that understanding the limitations of using the software in this manner is key to its successful application.

A novel approach to reducing noise generated by patrons in the alley was adopted by having a walk-through attenuator in front of the doors, sound absorption on the walls and rafts above the alley. The concept is an extension of a "sound lobby", but built entirely externally within the alley due to space constraints inside the building. The smoking shelter guidelines were re-evaluated to enable design of compliant spaces capable of providing acoustic screening.

The client said: "We had tried everything we could think of to reduce the noise but could not stop the complaints from the residents. Apex Acoustics came with a scientific approach to understanding the problem, and totally out-of-the-box solutions that we would never have thought of."

The judges recognised that this addresses a current issue with an innovative approach to a significant problem. It was a clever approach to take indoor noise modelling and use it outdoors and then design sound barrier and absorption panels to cope with the noise.



Vibration

WINNER

Cole Jarman

Francis Crick Institute, London

This is a unique building housing over 1200 scientists in a world class research facility in an unconventional location. Although well connected for rail, Eurostar, London Underground and major road routes, their proximity create significant sources of ground borne vibration. Furthermore, mechanical services plant linked to the laboratories, provide more sources of vibration.

The design team and vibration consultants collaborated with the other disciplines to consider the building to unprecedented levels of detail to address these conflicting requirements. Any process inside the building with the potential to generate vibration was reviewed and assessed, with mitigation incorporated to reduce the risk.

Impressive in its own right visually, few will realise the interior vibration environment was one of the key design drivers. This project shows how giving due credence to the discipline of vibration design can create world class facilities in what would otherwise be considered sub-prime locations. As well as the design process, there was scrutiny to ensure the full execution of design measures during construction. The end result is a low vibration environment in the building, which can easily be missed on a visit.

The architects commented: "The vibration consultants were integral to the design and realisation of an exceptional interactive, open environment, encouraging collaboration across disciplines and a highly flexible structure that will easily adapt to accommodate the rapid developments of scientific discovery" The judges were impressed by the interlinked vibration projects which make it unique, as well as the amount of work invested in the design. It is an incredible project which had to achieve the right outcome to enable the building to operate. The size, location and complexity make it stand out as the winner of this year's award.



HIGHLY COMMENDED: AECOM

Acoustic Shell for Theatre Royal, Glasgow

Scottish Opera wished to move their orchestra from the pit to the stage, using a collapsible orchestra shell to improve on stage acoustics. The consultants looked at developing an acoustic shell to determine the extent of the improvement, the sense of ensemble and the expected sound pressure levels on stage, as well as the change in sound quality in audience areas. They used a unique facility – the Immersive Sound Studio (ISS) – during the design process to produce auralisations and allow Scottish Opera to hear how the orchestra would sound from different locations. The ISS technology is applicable to a wider variety of acoustic projects and lets non-technical people easily and intuitively understand complex issues without complicated terminology and reports.

The judges were impressed by this technically challenging project, carried out to a high standard, and the client's involvement in reaching a decision based on how the theatre would sound. The technology is complex but it produces a very simple outcome which people clearly relate to.

COMMENDED: Red Twin

Sound Insulation & Flanking Assessment

A new school was experiencing problems with sound insulation of a movable wall product. The consultant reviewed the design and tested the system to establish the reasons for under-performance. They used an acoustic camera to identify hot spots whilst recognising that this is an uncalibrated and arbitrary method of assessment which could not confirm if the wall met the specification. They used sound intensity measurements to establish weaknesses in the building fabric but provided specific performance for the pass door and the flank elements which it had not previously been possible to separate.

The judges liked the measurement of the performance of actual elements and the application of existing technology in a different way. This was a good technique for resolving the problem and whilst perhaps not unique it was unusual to see it applied in the field rather than in the laboratory.

HIGHLY COMMENDED: WSP

Berkeley Hotel, London

An iconic hotel in Knightsbridge is being extended to construct a 9 storey building based on a complex lightweight structure. The development also involves excavation for 4 basement levels, bringing the raft foundation within approximately 6 metres of the Piccadilly Line tunnel. Vibration is a key concern as high end Spa and treatment facilities will be accommodated in the basement.

This project has helped further understanding in building isolation schemes as the consultants undertook a building vibration isolation performance detailed study, based on numerical modelling in a real case scenario. In sessions with client representatives they explained and demonstrated sources of uncertainties and isolation complexities, justifying their design and managing expectations. Academia were involved in various subject elements of the design and modelling.

The judges considered there were huge risks arising from the proximity to the Underground and complemented the consultants on their grasp of the project and alertness to possible problems. Focused on the superstructure only and dealing with the basement rooms individually, this project takes low frequency understanding to new levels and could change the approach to future projects.

COMMENDED: RBA Acoustics

Omerara and The Flat Iron Square, London

A project involving the conversion of active railway arches into a mixed use development including a live music venue, on a site in a busy urban environment. Extensive computer modelling was used to predict noise breakout and patron noise egress, as ensuring nearby noise-sensitive areas would not be overly disturbed was vital to the planning and design stages.

The two aspects of noise breakout and effects of structure-borne train noise on an intimate music venue make this an interesting project. The judges noted that due to budget restrictions and loss of space, a box in box solution was not possible so the consultants came up with a number of construction solutions and achieved a result which markedly surpassed the target level, resulting in train passbys being mostly inaudible during performances. Innovative design and analysis were used and the final construction required high quality workmanship and regular inspections.

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