ANC | ACOUSTICS & NOISE CONSULTANTS

ACOUSTIC AWARDS 2022

Building Acoustics Award

sponsored by getzner
engineering a quiet future

SRL Technical Services & Ramboll

Manchester Engineering Campus Development (MECD)

This £400m development is the largest, most ambitious single construction project completed by any UK higher education institute. The specialist engineering buildings enable a co-located community of 8000 academics to work alongside each other in a world leading research and education facility. The functionality of MECD is dependent on its exemplar acoustic performance. The seven faculties must operate alongside each other without impacting on each other's ground-breaking research; a challenge given much of the work is exceptionally noise and/or vibration sensitive.

Of note are the basement electron microscope suites, multiple laboratory spaces, with heavy duty labs, a plethora of "meet and teach" rooms (from 10 to 600-person capacity), and the enormous interconnecting atria some 200m long and 7 storeys high.

It is a model for collaboration between acousticians. In the eight years it took to complete this project, personnel changes inevitably happened, and it led to two acoustic consultancies working together on the same team to ensure successful completion. Adapting to the challenges presented by the project, is something that both consultancies are proud to have excelled in.

The judges appreciated this was a massive project which had required a lot of co-ordination and project management. In terms of consultancy and co-ordination it is an impressive piece of work in which all the objectives are fully achieved, as well as an example of collaboration between two acoustic consultancies. With vibration issues to consider and the different faculty's requirements, the judges recognised the challenge that this presented and the engineering conflicts which had been worked through.

The Vice Dean of the Faculty of Science and Engineering said:

"By bringing together different faculties from various locations and co-locating them in one facility, suitable acoustic environments were an important consideration in the design. The contractor's acoustic team were engaged early in the project and helped to shape the provision in the various areas. They used language we could understand and presented auralisations so we could make informed decisions. Overall, we are delighted with the acoustic environments and functionality of our new buildings and the level of engagement throughout the design process."

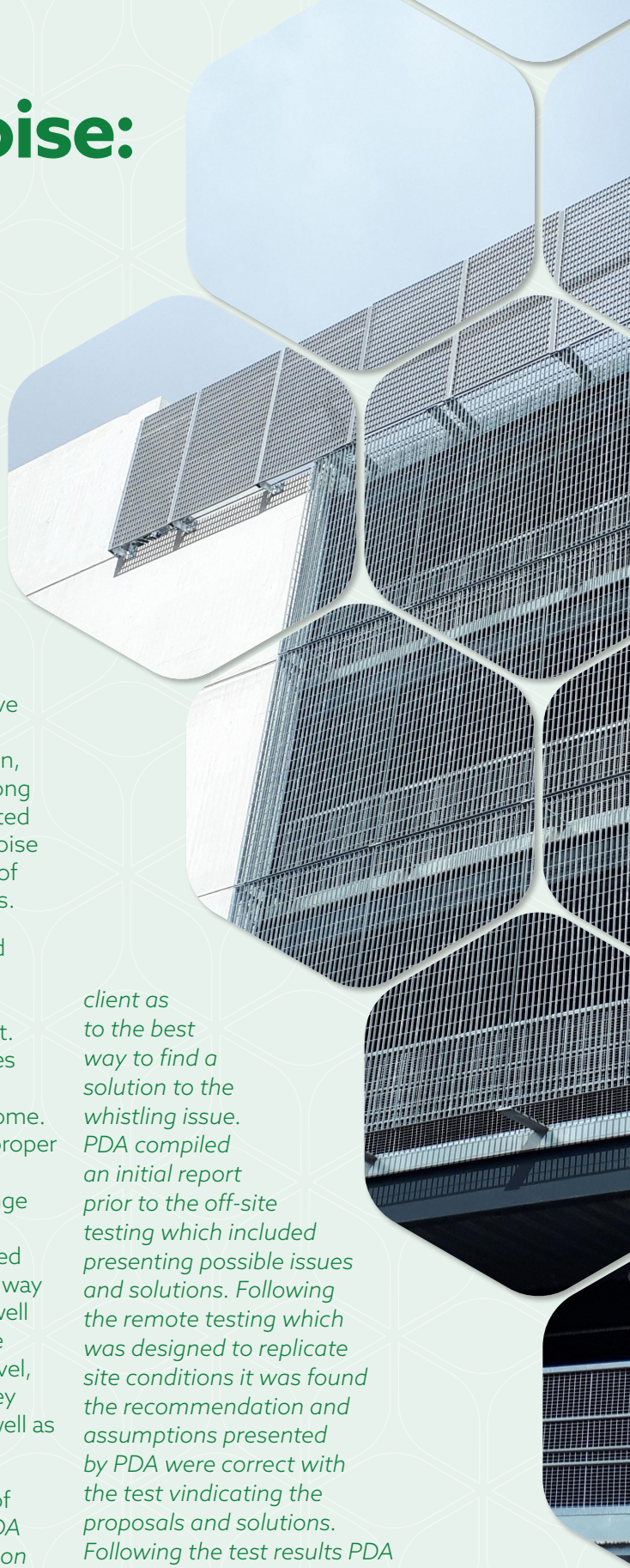
Image above and cover photo: BDP: Nick Caville

Environmental Noise: Infrastructure

sponsored by ANV Measurement Systems

PDA

Manchester Airport Multi-Storey Car Park – Security Mesh Noise Mitigation



This project involved the development of a mitigation strategy to address intense wind induced tonal whistling emanating from a huge amount of security mesh at the recently completed Multi-Storey Car Park (MSCP) at Manchester Airport, currently the largest MSCP in Western Europe. The tonal noise generated was causing issues at receivers up to 1km away. Structural damping had been proposed by aero experts but the acoustic consultants identified another approach.

The consultants were brought in post-installation and produced a strategy that would save the Main Contractor money by diverting what would have been an ineffectual proposed treatment programme. They characterised the noise generation at site; recommended a programme of product development and testing which oversaw the selection of a wind tunnel test facility and designed a testing scope of works and strategy whilst simultaneously vastly minimising costs; designed the testing rig; designed the test products; undertook value engineering during tests; oversaw and directed wind tunnel testing; selected the most practical and efficient mitigation product and strategy from those developed and completed a final interactive report with test video hyperlinks. After installation, on commissioning using long term monitoring all mitigated areas showed zero tonal noise generation over full range of wind speeds and directions.

The judges were impressed by the amount of acoustic investigation and scientific research behind this project. The solutions and processes were clearly set out and produced a very neat outcome. They were pleased to see proper testing and the steps taken by the consultancy to arrange a wind tunnel test. It was a brilliant project that delivered what the client required by way of an acoustic solution as well as saving them money. The consultants produced a novel, bespoke solution which they supported by research as well as extensive testing.

The Operations Manager of the manufacturer said: *"PDA advised on a course of action including, desk top study, noise monitoring, weather records and specialist testing at the BRE facility. They were instrumental in supporting us in advising our client as to the best way to find a solution to the whistling issue. PDA compiled an initial report prior to the off-site testing which included presenting possible issues and solutions. Following the remote testing which was designed to replicate site conditions it was found the recommendation and assumptions presented by PDA were correct with the test vindicating the proposals and solutions. Following the test results PDA produced a detailed report identifying remedial works which Maple implemented and then monitored to verify compliance."*

Vibration Prediction & Control Award

sponsored by CMSDANSKIN ACOUSTICS

ACCON UK

New housing development – Wiltshire

This project required a number of very difficult monitoring and design challenges to be overcome which involved a multi-consultancy approach in identifying that a planning condition with respect to internal re-radiated noise resulting from underground vibration could be discharged.

The starting point was to endeavour to break the impasse between the Local Planning Authority and the then noise consultants. Whilst, that consultancy had done more than enough monitoring and prediction work to discharge the contentious planning condition this was not accepted by the Council on the advice of their own noise consultant. ACCON were appointed to the project with the initial aim of providing a reradiated noise report suitable for the discharge of the noise condition which unfortunately had previously been compiled by the appellant and the LPA consultants at a Public Inquiry 5 years earlier. The planning condition was poorly constructed, did not meet the six tests of planning conditions and the legal team had not sought to amend it within the required timescales.

The challenges along the way included designing an appropriate measurement methodology to obtain robust vibration source data from the operations of an underground mine. The methodology for determining internal noise levels within the proposed buildings eventually required FEA modelling of the design solution as the Council's noise consultant was not prepared to accept an empirical modelling approach. The Planning Inspector ultimately did not rule on the efficacy of the noise and vibration evidence provided by either party, although during the Inquiry the Council's noise expert accepted that if everything worked as predicted then the condition would be discharged.

The judges commented on the extensive collaboration involved in this project noting that the consultants were brought in to help with a stalled project. Satisfying all the parties was important and good practice was employed, commensurate with the project requirements and presentation at a Public Inquiry.

This was a challenging and unusual project which involved finding a way of showing how residential properties could be constructed on a difficult site. This was a high-quality solution in terms of complex measurements, modelling and the final design. Alongside that is the requirement for negotiation with all the parties and evidence of collaboration and compromise to satisfy the high number of stakeholders involved.

Environmental Noise: non-infrastructure

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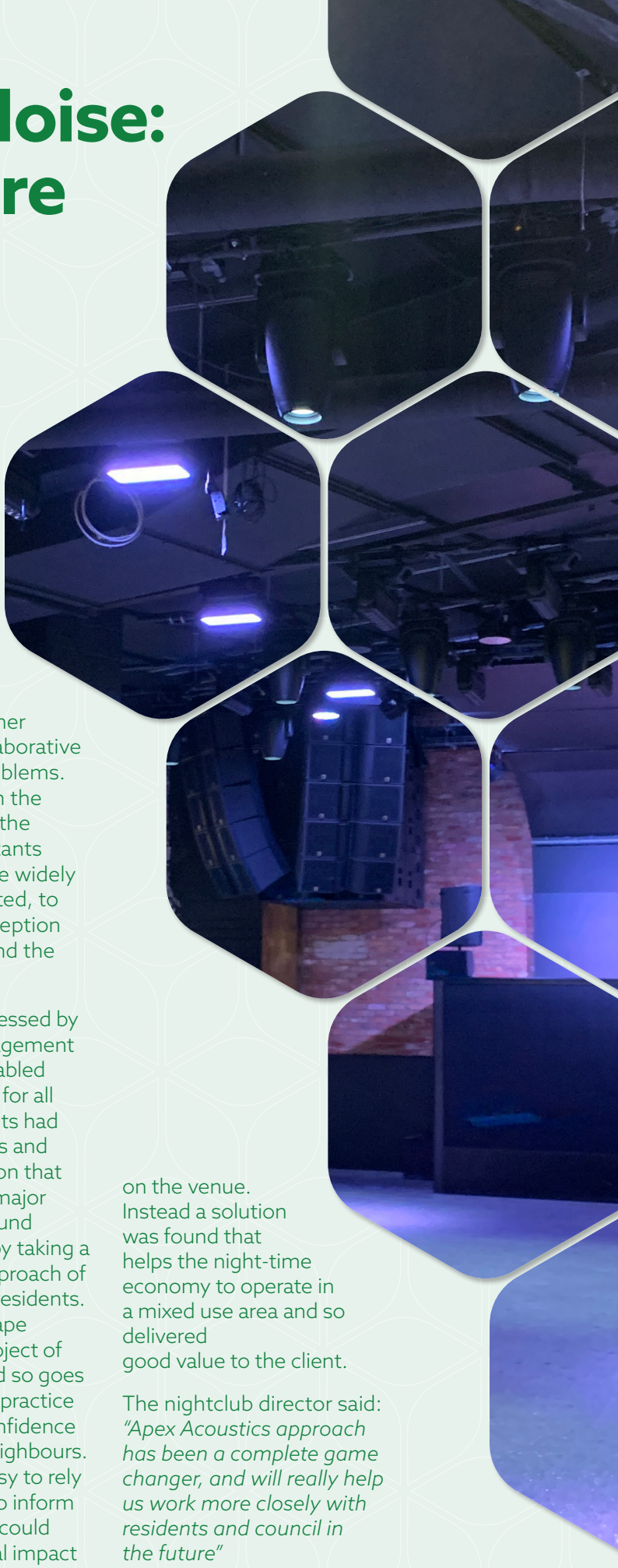
Making your world a quieter place

Apex Acoustics

Nightclub soundscape approach



This project demonstrates how a soundscape approach can lead to improved outcomes for all parties. A conventional approach would have entailed supporting the nightclub owners with a confrontational approach to the local authority, who were suggesting very onerous noise escape limits. These were not practically achievable, and threatened the continuing operation of the newly refurbished nightclub. A soundscape approach, consulting the local residents on their concerns over the night time sound environment in the round rather than focussing on a single complainant or issue, enabled very different outcomes:

- The local authority having confidence that they were doing enough to protect residents without being excessively cautious;
- The nightclub avoiding excessive remodelling works implied by the original local authority criterion for noise escape;
- Nightclub low frequency sound reduced to the NANR45 curve in the resident's flat by trimming the bass levels;
- Identification and action on other sources of night time sound annoyance, such as mitigation of noise from people queueing to enter venues.

This application of a soundscape approach, in a highly contentious context, led to improved outcomes for all parties. It can be replicated in many other situations to find collaborative solutions to noise problems. Rather than relying on the complaints to inform the response, the consultants chose to engage more widely with the people affected, to understand their perception of the soundscape, and the problems in context.

The judges were impressed by how the positive engagement with residents had enabled a successful outcome for all parties. The consultants had managed expectations and come up with a solution that avoided the need for major building works and sound insulation treatment by taking a brave and different approach of engaging with all the residents. The use of a soundscape questionnaire on a project of this size is unusual and so goes beyond existing good practice but gave the client confidence to engage with the neighbours. It would have been easy to rely on noise complaints to inform the approach but this could have had a detrimental impact on the venue. Instead a solution was found that helps the night-time economy to operate in a mixed use area and so delivered good value to the client.

The nightclub director said: *"Apex Acoustics approach has been a complete game changer, and will really help us work more closely with residents and council in the future"*

Smaller Consultancies Award

ACCON UK *Lane Rental Phase 2 – Out of Hours Working*

There is no systematic or standardised method for London Local Authorities to consider applications for planned Out of Hours street works or road works that by necessity have to take place during evening or weekend periods with regard to the impact from noise on residents. The project has delivered a completely innovative set of tools to enable Environmental Health Officers to approve permits for street works that may cause noise disturbance to residents within densely populated and highly built-up areas of London and contractors to inform residents that may be affected.

This project has developed the following

- New criteria for noise disturbance from street works
- A simple and easy to use Noise Prediction Tool, enabling contractor to predict the extent or zone of potential noise disturbance from street works
- A GIS app/tool that enables the zone of potential noise disturbance from any set of street works to be identified visually. The app generates a corresponding list of addresses of residential properties so that the residents can be informed by the contractor carrying out the works of potential noise disturbance in advance.

The noise survey work carried out has also created a database of source noise levels for plant and activities for street works. As the project was carried out with funding from TfL, in due course the resulting tools may be adopted by other London local authorities in addition to Westminster and City of London.

The team managers for Westminster City Council & City of London said: "Accon's staff were highly organised - this was demonstrated in their planning and execution of field surveys, and responses and clarification of any matters in a timely manner. We were also presented with a comprehensive final report they submitted. In overall, we were very impressed by the Consultants' high level of professionalism and expertise."

This project is winner of the Smaller Consultancies Award 2022 which recognises the important role that firms with 6 or less acoustic staff make to the sector.

The Smaller Consultancies Award is dedicated to the late Patrick Shortt, director of Paragon Acoustics, who tragically died in a road accident in July 2022. *Patrick made a huge contribution to the Association through his involvement in numerous committees and groups and is sadly missed by all who knew him and benefitted from his advice and input.*

Innovation Award *sponsored by* AcSoft Noise, Vibration & Air Quality

AECOM *Metrolinx, Ontario*

This is a new light transit rail system that will be built to help connect remote areas to the centre of Ontario, Canada, significantly reducing journey times and opening more opportunities for the communities served by the new link. With key planning stages developed during the Covid pandemic, this project saw particular challenges in reaching communities to fully engage ahead of approvals being granted. With physical restrictions in place, the stakeholder engagement programme needed to think outside the box to deliver content in a remote, accessible and ultimately meaningful way. A web-based auralisation tool was developed to help support the process, with the following key features:

- Critical element contributing to the estimated 100,000 community interactions, which were all delivered remotely
- Hosted on a web-based platform which significantly broadened the auralisation's reach
- Powerful tool to reassure the affected communities about the planned measures to minimise noise impact
- International collaboration between Digital Architects, VR specialists, web-platform designers and acousticians.
- Major project which will be a fundamental driver in the regeneration of previously overlooked communities on the periphery of a major city.

The judges viewed the simulation for this and were impressed by it. Whilst the techniques have been used before this is an excellent example which can benefit other future projects particularly those involving linear infrastructure. The use of engagement tools to convey complex ideas to those effected is a positive development and a good way of improving community involvement and liaison. Undertaking this during a period of restricted physical engagement added to the challenge but also shows what can be done with collaboration with other professionals to support demonstration of acoustics to the wider public. It is an innovative project deserving of this year's Award.

PDA *Manchester Airport Multi-Storey Car Park – Security Mesh Noise Mitigation*

This project involved the development of a mitigation strategy to address intense wind induced tonal whistling emanating from a huge amount of security mesh at the recently completed Multi-Storey Car Park (MSCP) at Manchester Airport, currently the largest MSCP in Western Europe. The tonal noise generated was causing issues at receivers up to 1km away. As the winner of the Infrastructure Award, full details appear **here**

The judges were impressed by the creative approach and the use of wind tunnel testing for a project where this would not normally be a feature. Designing their own test rigs helped keep the costs down and the overall outcome secured a significant saving for the client compared to the original proposal. This project is an excellent example of acoustics in practice accompanied by use of laboratory testing to support the acousticians' solution. It is an innovative project deserving of this year's Award.

Best Presentation Award

sponsored by Cirrus Research plc

WSP *Eden Project North*

A mixed-use leisure development in Morecambe, based on the popular Cornwall visitor attraction and focusing on the marine environment posed many acoustic challenges, the most demanding being a proposed outdoor arena proposed for live music concerts which is close to many existing noise sensitive receptors.

A novel approach was taken by the acoustic consultant, whereby existing Code of Practice noise guidance was modified and a sliding scale of guideline noise levels introduced, giving the Client flexibility on the number of permissible events whilst giving the EHO confidence that significant adverse effects would be avoided.

Acoustic Awards 2022

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.

Judges 2022

The judging panels are made up of consultants, academics, suppliers and those with specialist knowledge of each award category. We gratefully acknowledge their contribution and input to reviewing the entries and providing feedback. Any conflicts of interest were declared. There are separate judging panels for each award.

The judges have not visited any of the projects or heard the results. In a number of cases the projects are not built, and so it is not possible to validate the results. The judges expressed a preference for projects that have obtained planning permission or are complete.

Sue Bird, (chair of judges)

Mandeep Bansal, Knauf

Mike Breslin, ANV Measurement Systems

Abigail Bristow, Surrey University

Iain Critchley, Peninsular Acoustics

Stephen Dance, South Bank University

Phil Evans, Savills

Steve Gosling, 24 Acoustics

Wes Highton, CMS Danskin

David Hiller, Arup

Aidan Hubbard, AcSoft

Sarah Huskie, CDM Stravitec

Lisa Lavia, Noise Abatement Society

Richard Mackenzie, RMP

James Talbot, Cambridge University

Gary Timmins, BRE

Stephen Turner, ST Acoustics

Ben van Breda, Getzner

David Waddington, Salford University

Somayya Yaqub, LB Ealing