

'Matter' Nightclub The O2, Greenwich

Created by the owners of the world-famous 'Fabric' night-club in Clerkenwell London, 'Matter' is a brand new 2,600-capacity multi-purpose entertainment venue located within The O2 in Greenwich. With some of the most advanced technological systems for any entertainment venue in the world, AAD was set the challenge of designing an acoustic environment to match as well as ensuring high volumes of music could be adequately contained by the building.



Main Room Dance-Floor

CGI Visualisation: Pentagram Architects

Matter sets a new benchmark for entertainment venues in the UK. Dubbed as a live music venue with nightclub capabilities, it provides up to three separate entertainment spaces including V I P and V V I P areas, the Main room set over 3 floors complete with live stage, and a Second room with dance-floor and separate lighting and sound systems.

Sound System Details

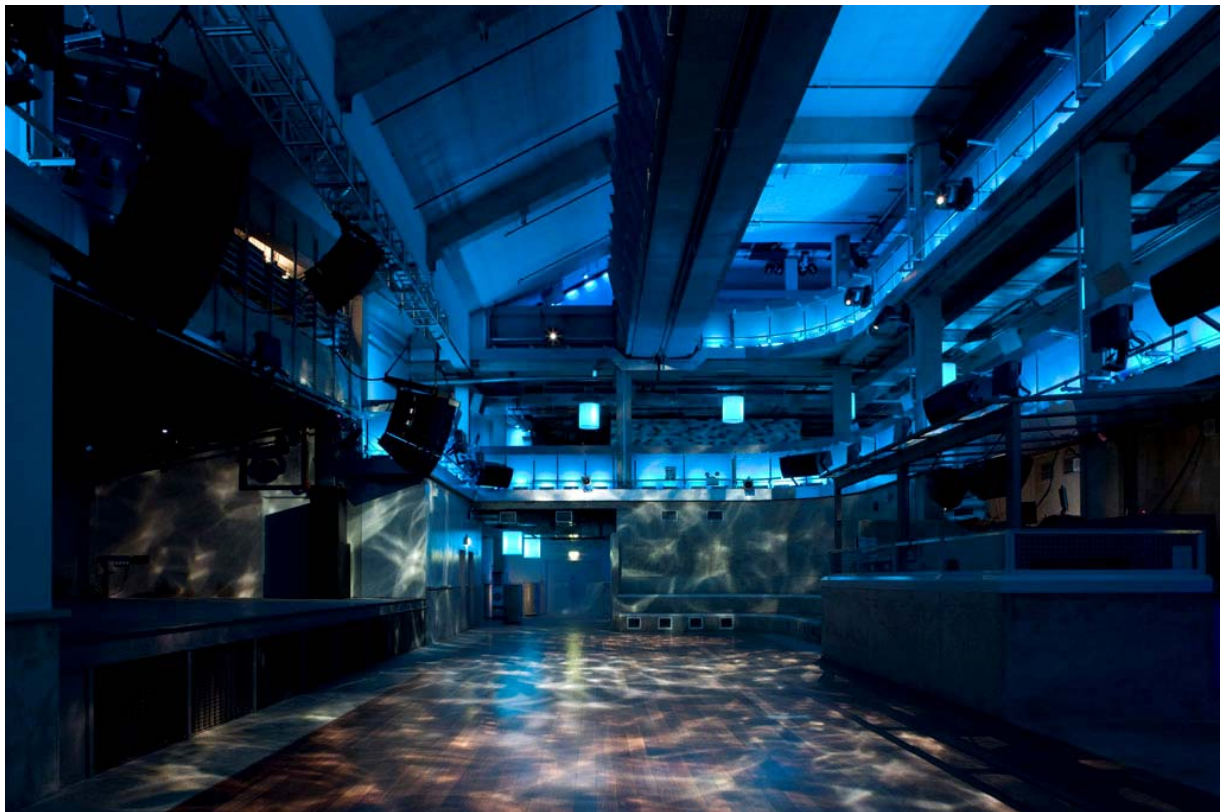
The venue incorporates the very latest cutting edge technology in terms of audio, lighting and visual effects. The sound system in the main room is based around a Martin Audio W8L Longbow line array system and utilizes outboard processing to enable sound to be mapped in 3-D. The dance-floor is built above 80 mechanical transducers which take the low-frequency

content of the music and radiate it as pure vibration energy directly into patron's bodies. Recent studies in psycho-acoustics have shown that such transducer systems can create an enveloping feeling of being 'locked into the music' as well as giving an impression of greater low frequency extension.

Acoustic Details

AAD's appointment for the project included the following aspects:

- Assessing the suitability of the building structure with respect to noise breakout to neighbouring tenants and nearby residential buildings.
- Assessing the intended use of the building (in terms of expected noise levels) with respect to the landlord's requirements.
- Providing input to the architectural design for internal acoustic conditions, i.e. controlling excessive reverberation, etc.
- Providing input to the architectural design with respect to minimizing noise exposure for staff members, particularly bar staff (Control of Noise at Work Noise at Work Regulations for music & entertainment, effective 6th April 2008).
- Providing input to the building services contractor to control noise breakout through ductwork systems.



Completed Main Room with transducer dance-floor

Photo: Gavin Jackson - Pentagram

Room Finishes

Because the design intent for internal finishes within the Main Room were predominantly smooth concrete, it was felt that without any additional acoustic treatment the venue may lend

itself to being excessively reverberant. A large sound system in the Main Room combined with 2,000+ patrons would potentially create a very noisy environment. Therefore, in order to provide a level of reverberation control, it was recommended that the entire ceiling surface (some 500m²) should be treated with an acoustically-absorbent spray-applied product the final application being just 16mm thick.

In addition to the ceiling treatment, the bars in the Main Room were also treated with acoustically-absorbent ceilings and rear walls in order to try and reduce localized noise levels. Ceilings were constructed using perforated metal sheet with 50mm mineral quilt laid over with a 200mm air gap above. The rear walls to the bar were constructed similarly, using 25mm quilt behind the perforated metal with a 50mm gap behind that.

Building Envelope

As part of the final stages of the project, comprehensive testing was undertaken to assess the building's ability to contain music noise. A large temporary sound system was used to generate high levels of pink noise within the venue. Measurements were taken inside and outside to verify the sound insulation of the building. Further measurements were also taken using the venue's in-house sound system operating at 'typical' levels (exceeding 100 dB(A) on the dance-floor).

Project Details

AAD's Senior Consultant, Tim Nicholls, who led the assignment from inception to conclusion, said that..."AAD's multi-disciplinary capability was a key factor in delivering to Fabric an integrated, practicable and cost effective series of solutions. Amongst the many items competing for our attention were the building fabric (for acoustic integrity purposes) building finishes (for reverberation control) building services plant and systems (for background noise and cross talk control) and employee noise exposure control (Health & Safety at Work Act, Music & Entertainment Sector new Regulations). Fabric's team was a reference in excellence, so that helped a great deal; they made my potentially challenging job to deliver venue design as well as operational guidance a pretty straightforward affair. Matter Nightclub in the O2 Arena - get in there!"



Cameron Leslie (Managing Director for Fabric and Matter) said...
"AAD's involvement in the creation of Matter has resulted in an acoustic environment which complements our state of the art sound systems whilst at the same time providing our staff with some positive protection from the sound pressure levels on the dance-floor. AAD have demonstrated their experience and professionalism in coordinating with the rest of the design team – this has given us a venue which allows us to do exactly what we want to without worrying about annoying the neighbours! I cannot recommend them enough."

Cameron Leslie – MD Fabric/Matter www.matterlondon.com

Client:	Fabric 591 Ltd
Concept Architect:	Pentagram
AV Design/Contractor:	Most Technical
Acoustic Consultant:	Applied Acoustic Design