



# NEXO line array defeats 'flutter echo' in multi-purpose venue

The serenely elegant facades of the newly-renovated Winter Gardens Pavilion gave no clue as to the acoustic challenges that awaited audio-visual integrators Design AV Europe. Close co-operation with leading consultancy AMS Acoustics and sound reinforcement manufacturer NEXO has overcome the architectural quirks of this striking neo-Georgian ballroom space to produce a thoroughly modern commercial venue for academic and entertainment use.

Located in a prime site in the seaside town of Weston-super-Mare, the Winter Gardens Pavilion was completed in 1927. During the 1960s and 70s, it was a popular performance venue for touring bands, including Pink Floyd, David Bowie, Deep Purple and T.Rex. But, by 2012, the building had fallen on harder times and was operating at a considerable loss. Owners North Somerset Council agreed a deal with nearby Weston College, selling the Pavilion for a nominal fee of £1, providing the College financed the restoration of the venue. Over the last 2 years, Weston College has completely renovated the building, and installed new technology to handle a wide variety of conferences and events.

Specialist integrator Design AV Europe was contracted to provide audio and video technology in four areas of the Pavilion: the ballroom itself, the adjacent bar and restaurant, the reception, and the College reception. Damien Orritt of Design AV approached NEXO to supply the audio system for the ballroom/concert hall, designed to work in any one of five audio scenarios: speech, dinners and table-seated events; live band and concert-type events; a ballroom mode with sound only on the dancefloor; and a full DJ mode with sound on the dancefloor and the promenade.

The central space of the Pavilion is the unusual oval-shaped ballroom, with a raised promenade encircling the sunken floor, under a domed roof. Huge floor to ceiling windows ring the space, which can accommodate 450 people in a variety of layouts.

London-based AMS Acoustics was keen to work on the electroacoustic tuning of the project, as Helen Goddard explains. "This is not an easy space to put loudspeakers into. It has been designed with a natural acoustic, which allows a band to be heard all across the dancefloor. The elliptical shape of the room has ▶



promenade allows for the introduction of time delays, especially useful for the speech/teaching scenario, where they provide enhanced speech intelligibility.”

Powered by 3x NEXO NXAMP4x1 controller/ amplifiers, the system is controlled over a BSS Soundweb network. Overall, the installation team has achieved their primary audio objective for the Winter Gardens: to balance the sound between the GEO M6 and ID Series to make sure neither source is dominant, using the minimum amount of acoustic power, and maximising dispersion and coverage. The five user settings give the Winter Gardens a high degree of versatility, with precise speech intelligibility for lectures and conferences, as well as a variety of hospitality and entertainment events.

In a separate background music system, playing in the Winter Gardens reception, additional ID24i speakers have been installed, supplemented by a compact S110 subwoofer in white, virtually invisible in its ceiling-mounted location. This is the first UK installation of this dedicated sub.

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two distinct axes, and the domed roof was focussing sound back down into the room. There was even a stunning ‘flutter echo’, which is a very rare event!”

Helen and her team spent a day at the Pavilion, measuring impulse response and reverberation times, before applying equalisation, and determining the correct time delay for the different elements of the audio system. “Technically, getting the acoustics right is the most difficult part of the installation,” explains Damien Orritt of Design AV. “We applied a Class A absorber to the dome itself, just to flatten it out a bit, and worked with AMS Acoustics on programming five user settings which are button-selectable on the Crestron touchpanel.”

For the central area (dancefloor), there are left/right clusters of four GEO M620 line array modules, with two LS18 subwoofers built into the surrounding balcony. For the promenade area, NEXO ID24i compact loudspeakers have been fitted. Specifying the 120° x 60° model for its wide dispersion characteristics means that just thirteen speakers are needed to provide full coverage.

“The ID24s are white and very low profile, so they don’t disrupt the room’s aesthetic,” says NEXO’s Gareth Collyer. “The GEO M620 line array modules allow the dispersion to be maximised front to back. Even though the length of the line array is short, thanks to the compactness of the M6 design, the angles between cabinets provide vertical control, directing sound away from the glass and the roof. Having the ID 24i loudspeakers around the

