

A perspective of the renowned Blue Note performance space, with new SLS Audio loudspeakers in place.

BLUE NOTE Redux



New sound for an iconic
NYC jazz showcase.
by Gregory A. DeTogne

Beyond the stellar names that have graced its stage, one of the other enduring legacies at New York City's Blue Note is its sound. Forged within a long, narrow, and asymmetrical space, the voice of this venerable jazz club in Greenwich Village between 6th and McDougal Streets extends from a centrally-located stage out onto a crowd seated at multiple levels, most within 20 feet of the performers.

Imbued with good acoustics, the room nonetheless presents its fair share of audio design challenges, given dimensions measuring about 15 feet from the front of the stage to the rear wall, ceiling heights as low as nine feet, and distances to the outer walls at the left and right of the stage measuring 30 and 46 feet respectively.

The Blue Note was opened in 1981 by Danny Bensusan, with son Steven now serving as president. For much of the club's life, Amit Peleg has been the guardian of its sound reinforcement. Hired as the sound person upon his arrival in NYC in 1988, when Peleg first walked into the room he stopped, looked up, and stood face-to-face with three loudspeakers suspended over the stage. Comprising full-range boxes on the bottom and separate horn-loaded HF sections on top, these three boxes were all there was for sound reinforcement in the entire house, with one aimed forward and two to the sides.

"The club was about seven years old then," Peleg recalls. "They had been booking all of the heavy-hitters - the biggest names in the business - for some time. These were musicians that would normally never play a club. But with the Blue Note, because of its reputation, it was different. This stage may be little, but it's world class. Ray Charles not only performed here, he brought along a 27-piece band."

Meritorious Service

With the Blue Note already ensconced as a jazz epicenter, Peleg was given the go-ahead to draft plans for a sonic renovation. A proponent of loudspeakers with ribbon-based high-frequency sections, he felt the technology was especially appropriate for this situation, where given the proximity of the stage to the rear wall, horn-loaded loudspeakers may tend to overexcite the room.

"I have a hard time mixing on loudspeakers loaded with compression drivers," Peleg adds. "To me, the distortion and ear fatigue are disturbing. One of the drawbacks of ribbon-based designs at the time, however, was that they weren't normally capable of producing the output you could get from a compression driver."

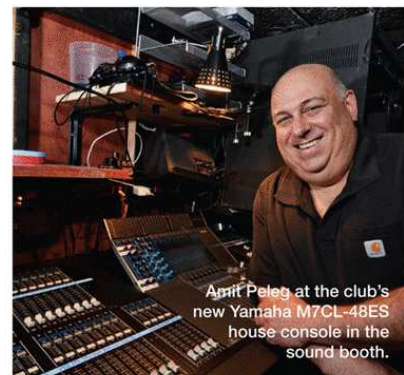
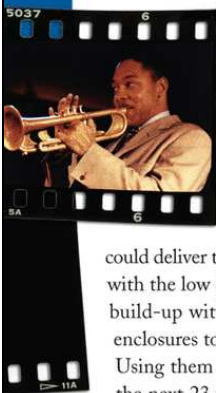
Researching the limited options, Peleg ultimately uncovered a Dutch company, Stage Acoustics (SA), that was producing a line of ribbon tweeter-equipped enclosures that could deliver the sound pressure levels required of the task at hand. Impressed with the low distortion, flat frequency response, and lack of high frequency build-up within the boxes, Peleg inked a deal with SA that brought the enclosures to the club, largely flown above the stage.

Using them as the building blocks of his new system, they performed for the next 23 years without failure, eventually passing the torch to another system in a version 2.0 upgrade performed once again by Peleg earlier this year, this time under the auspices of his contracting firm, Peltrix.

"The self-powered SA loudspeakers did an incredible job right up until the



The Yamaha TX4n amplifiers that drive the full-range system, each with a unique preset tailored to meet specific needs.



Amit Peleg at the club's new Yamaha M7CL-48ES house console in the sound booth.

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The previous system's Stage Accompany loudspeaker set.

moment we switched on the new system this year," Peleg says. "Consider, too, that the amplifiers in those loudspeakers incorporated computer control. This before even Crown's IQ System was unveiled. We had a (Windows) XT 286 PC in the rack - the computer of choice at the time - and were running proprietary networking software called SA Net. We basically could do everything you can do now with computer control then."

Balancing Act

Still sold on the ribbon HF concept, Peleg initially began working in 2005 with Garth Showalter of SLS Audio to bring Blue Note audio into the 21st century. The two turned the Blue Note into a living laboratory when given the chance, testing vertical arrays of steerable columns (flown horizontally) used with combinations of fill loudspeakers and various formulas for delay.

While amazingly precise, the steerable arrays were difficult to position - holes in coverage emerged because of too much cancellation. The steerable array idea was eventually let go, heralding a return to an update of what is

basically the original Peleg design.

Based around seven SLS 115RT-I 2-way loudspeakers suspended above the stage on custom-made mounts from Massachusetts-based Polar Focus, the latest Blue Note audio blueprint adds three smaller SLS cabinets (model 8190Tv2-I) above the stage, another 115RT-I firing from further into the audience at stage left into an alcove that includes the sound booth, and a pair of SLS 112RT-I loudspeakers mounted well off of stage right aimed into the bar area.

"Because of the room's small size and configuration," Peleg explains, "one of the main concepts you have to grasp in order to truly understand how this system works is that it's used mainly to give balance to the sound coming off the stage."

To reach this harmony between what's reinforced and what's naturally arising from the stage, Peleg divided the club into three separate zones for mixing, each of which takes into consideration where members of the audience are in relation to the instruments onstage. Due to the positioning of the stage, stereo imaging isn't possible, but each zone can be mixed to give a

full and accurate representation of the music being made using the appropriate loudspeakers for that zone.

To obtain this equilibrium, the house mix engineer walks around within the different zones, remotely making adjustments via an iPad running Yamaha's StageMix App that offers access back to 31 channels at the house's Yamaha M7CL-48ES digital console (Channel 32 is used for an announcement mic.)

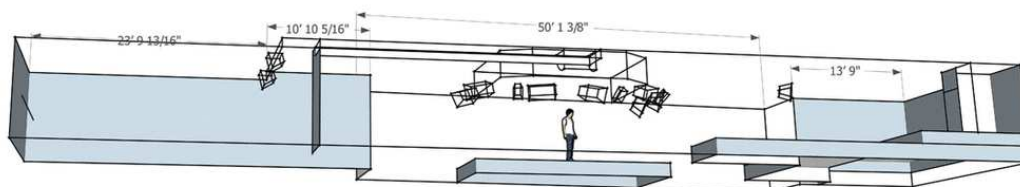
Role Of Control

As a practical illustration of how this works, take, for example, the three smaller 8190Tv cabinets suspended above the stage. Why are they there?

"Just imagine sitting right there in front of the stage," Peleg imparts. "The kick drum is five feet from your right ear, and the bass and guitar cabinets are six feet from your left ear. The vocalist is standing right in front of you, and if it weren't for those cabinets, you'd be able to see his or her mouth move clearly, but unable to hear anything coming out. These loudspeakers compensate for those who can only hear stage sounds, not those in the house - this is where their vocals or anything else that may be missing come from."

Transpose that same logic to the rest of the loudspeakers, each adjusted for what the audience can and cannot hear in each area. Delay between each cabinet prevents interference as needed, and control plays a huge role in putting everything into its perfect place. "Each loudspeaker is powered and controlled separately," Peleg continues, "to prevent inter-cabinet interference."

A total of 13 Yamaha TX4n DSP-based amplifiers power the full-range portion of the house, each programmed by SLS with a unique preset expressly for its dedicated tasks. Modifications were made to these presets when the system was tuned, but the SLS set-



tings proved a very good starting point in each case. "Now we can control the levels of each speaker individually, plus compensate for bass traps, limiting, levels of acoustical absorption, or any one of a number of things that can be addressed within the DSP," Peleg notes. Overall system processing is handled with two dbx DriveRack 4820s located in the racks with the amplifiers.

Networked for both signal and control, the entire system is digital from stem to stern. The only points of conversion are A/D at the stage box input and return, and D/A at the output of

the amplifiers. In between, it's a digital domain entirely using either Ether-Sound or AES/EBU.

Lowering The Boom

Prior to this latest upgrade, the Blue Note never had subwoofers. Increasingly over the years, however, acts seen and heard in the room coming from outside the jazz world required an extended range of LF. For a time, the club rented subs as needed, setting them up on the floor. In purely functional terms this worked, but killing off space for two tables of four patrons to

Detailing the room and new system's loudspeaker positioning.

accommodate the addition of subs can impact profitability in some circumstances. Given ceiling height and performance factors, flying the subs wasn't an option either.

What was seemingly a minor problem actually held up implementation of the new design for a time, until d&b audiotechnik appeared on the scene with the B4-SUB. Standing a little less than 19 inches high and loaded with single 15-in and a 12-in woofers in a cardioid

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pattern to cancel rear-firing bass energy, four of these units provide the means to locate subs under the stage. Beyond conquering spatial issues, the cardioid-canceling LF cabinets don't resonate much under the stage floor.

Stage monitoring is supplied in three mixes via a pair of JBL AM6215/95 ceiling-mounted loudspeakers aimed downstage center for mix one, and a pair of JBL VRX 115Ms divided one apiece between the second and third mixes.

An added plus of going with the new M7CL digital console at front of house is that its version 3 software allows a network ASIO driver from Auvitrans to be used for DAW recording. Engineers can now easily multitrack shows right to Pro Tools, a function useful for archival purposes as well as to the efforts of Half Note Records, the Grammy-winning label owned by Blue Note.

Quick Switch

The new rig was installed by Peleg and his crew in a process that allowed the old system to keep running until the final switchover was made. Note that the Blue Note has only closed three times in its history (over 9-11 and 9-12, 2001, and for a day during Hurricane Irene), a fact that made the transition from one system to the next a delicate and no-excuses operation.

When that moment came, everything had to be completed overnight. With some drywall removed to expose the joists, new wiring was run from the amplifier room out to the new loudspeakers.

Also during the transition, the old system's outboard gear was moved just outside of the sound booth so it could continue being used while the new console and outboard gear were

installed. Despite all of this activity, the new system was tested, tuned and ready for sound check at 4 pm the next day.

Since commissioning the system, the Blue Note has hosted an eclectic mix of artists including such as jazz great Toots Thielemans, R&B vocalist Al Jarreau, and hip-hop favorite Mos Def. "This new system has the breadth, range, and stamina to run with anything we've thrown at it so far," Peleg concludes. "It's versatile and pleasing to both the crowds and artists. The music experience here is better than ever, and that's the best insurance for a brighter future that I can think of." ■

GREGORY A. DETOGNE is a writer and editor who has served the pro audio industry for the past 30 years.

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