Suntory Hall Re-opens After Its Renewal Project

By Makoto Ino

Suntory Hall first opened its doors in October 1986. Last year, after the hall celebrated its 20th anniversary, the hall underwent a major renewal project, reopening on September 1, 2007.

Figure 1: Interior of the Large Hall after the renovation

Suntory Hall's first appearance in the Nagata Acoustics monthly newsletter coincided with the newsletter's very first issue, dated January 1988. At that time, our company founder, Dr. Minoru Nagata, focused the article on Suntory Hall's first year, writing about the hall's reputation with performers and audience during its inaugural year and also listing a bibliography of acoustical engineering articles written about Suntory Hall shortly after the hall's opening. In the months and years since the first issue of the newsletter, Suntory Hall has frequently appeared in these pages.

Some Pre-renewal Suntory Hall Memories

For Nagata Acoustics, Suntory Hall represented a turning point in the application of research on sound reflections to hall design, and the success of Suntory Hall proved the merit of our acoustical design methodology, which places importance on the characteristics of a hall's sound reflections. Dr. Nagata followed Suntory Hall's rise to prominence as a world class hall like a proud parent and has always retained a strong professional attachment to this milestone project.

In June 1988, for our newsletter's sixth issue, Dr. Nagata wrote an intriguing article about Suntory Hall entitled "Does a Hall's Sound Change?" When the hall had been in operation for one-and-a-half years, comments arose from both performers and concert patrons that something about Suntory Hall's acoustics had changed. I remember experiencing this sense of something changed when I attended a concert at Suntory Hall a few years after the hall opened and after a hiatus in my concert attendance there. My personal evaluation was that the hall's sound now had more clarity and subtlety than before, and I had a greater sense of the pleasurable way sound flows through the large space until it eventually vanishes. Dr. Nagata closed his article on whether hall sound changes by writing, "the good news is that the changes that occur are always positive." The experience of this positive change in the hall must have been a rewarding sensation.

Overview of the Suntory Hall Renewal Project

Now, 20 years later, the hall has preserved its fine acoustics through the recently completed renewal project. The project's key driver and leader, Suntory Hall Associate Chief Manager Yotaro Takeda says that planning activities for the project began about five years ago. Last autumn, the hall held its 20th anniversary festivities and brought them to a successful close; then, on April 1 of this year, the hall shut down completely and the renewal work went into full swing.

The same companies that performed the original work for the hall were brought back for the renewal project. Yasui Architects & Engineers, Inc. prepared the architectural plans and design, and Kajima Corporation was responsible for the renovation construction. Nagata Acoustics consulted on the acoustics and designed the new sound system, and Fuji Sound Co., Ltd. installed the sound system.

The main objectives of the renewal project included replacement of the stage mechanisms and building equipment, refurbishing worn aesthetic elements of the hall, increasing the restroom facilities and implementing universal design features to provide improved access for wheel chairs and patrons with other special needs. Additions were made to the stage-floor risers of both the Large and Small halls to accommodate a wider range of performance formats.

In the Large Hall, the walls' wood paneling was replaced, the ceiling painted and both the upholstery and the cushions of the audience seating were replaced. For all of these Large Hall renovations, the same materials and production methods that were used when the hall opened 20 years ago were used again in order to ensure that the renovation work would not affect the hall's acoustics.

Figure 2: Sidewalls of the stage of the Small Hall

In the Small Hall, changes to the sidewalls of the stage make them able to be manually positioned to enhance the stage with stage wings when needed. We maximized the value of this part of the renovation by designing the sidewall panels so that they can be set at any desired angle and used as sound reflection panels as well as to create stage wings.

Sound System Renovation

When Suntory Hall was under construction in the 1980s, the value of having a sound system in a concert hall was still relatively unrecognized. Some project participants even said that there was no reason to install loudspeakers in a concert hall. By contrast, nowadays, lecture concerts and other educational programming have become common concert formats, and the quality of amplified speech is an important element in successful production of these kinds of programs. I gave particular attention to this need in planning and designing the loudspeaker replacement systems

for the Large and Small halls.

The two goals of replacing the Large Hall's loudspeaker system were to obtain a level of speech intelligibility that ensures ease of comprehension by the audience and, at the same time, to deliver amplified sound imbued with a dignified quality that appropriately complements the hall's acoustics. We began the loudspeaker selection process by following advice once given to us by Suntory Hall's founder, the late Mr. Keizo Saji. When Nagata Acoustics began acoustical design of Suntory Hall, it was a great challenge for us for we had never done the acoustical design of a vineyard configuration concert hall. Mr. Saji encouraged us by saying "Just go for it." Remembering this forward-looking attitude of trying anything, we brought in all the loudspeaker choices and "just had us a listen."

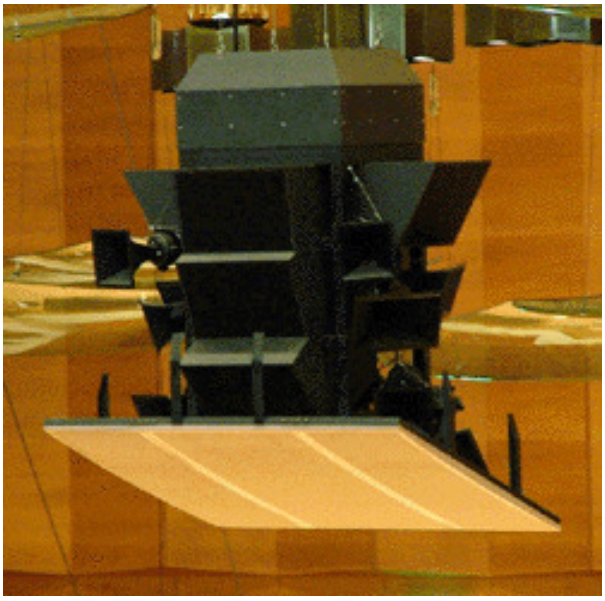

Figure 3: The Large Hall's old main cluster speaker

Figure 4: The new main cluster line array speaker

For the renovation project we again assembled the candidate loudspeakers from several manufacturers and brought them into the Large Hall to evaluate each one. The two finalists in our selection process represented two different array technologies by two different U.S. manufacturers. One was EAW's coaxial AX series, which uses a methodology that moves the air through a common horn, delivering very clear, crisp sound. The other finalist, the XLVC series by Electro-Voice (E.V.), uses the technology of combining multiple loudspeaker units end-to-end in line arrays, an approach that produces sound characterized by very high intelligibility. We surveyed the preferences of several dozen individuals connected with Suntory Hall and the project and discovered that while some acoustical professionals tended to prefer the coaxial type of loudspeaker, everyone else tended to favor the line array type of loudspeaker. After debating the merits of the two loudspeaker systems, we aligned our decision with our goal of ensuring a high level of speech intelligibility and selected the line array loudspeakers.

In the Large Hall, the main cluster can be raised up into the ceiling to hide it from sight. We installed additional in-ceiling and above-ceiling loudspeakers as a supplement to the main cluster so that the loudspeaker system can

be effectively used while the main cluster is in its raised position. I performed the initial configuration work to program the system's settings, after which the company responsible for on-site sound technician needs, NHK Art Inc., completed the fine tuning. The result is that we achieved extremely high quality intelligibility for amplified sound in the Large Hall. The Large Hall's main cluster was needed for the hall's 20th anniversary celebration concerts and events, which we knew would include frequent speeches in-between performances, so we obtained the approval of Suntory's leadership team to install this equipment during the summer of last year when the hall had a scheduled maintenance closure, in advance of the actual start of the renovation project.

In our renovation plan for the Small Hall, we gave careful consideration to the programming direction of Suntory Hall's President, Mr. Nobutada Saji, who aimed to have the refresh and renewal project be an opportunity to increase the hall's appeal with younger audiences. To enhance the ability to present recorded media to this demographic, we installed a full hi-vision video projector and greatly increased the number of loudspeaker units in the Small Hall to enable the reproduction of 5.1 channel surround sound from DVDs and other sources. Given the serene interior of the Small Hall and the objective of upgrading this hall's sound system, we chose the German company d&b audiotechnik's Ci series and E series loudspeakers for this part of the renovation.

With the reopening of Suntory Hall, Mr. Saji passed the helm to a new hall president, Mr. Tsuyoshi Tsutsumi, the accomplished professional cellist and chancellor of Toho Gakuen School of Music. With the renovations done and Mr. Tsutsumi in charge, I have full confidence that Suntory Hall will fill its calendar with inviting and exciting programs for all ages, from children to seniors. I look forward to seeing my music-loving friends, acquaintances and associates at Suntory Hall again soon.