LOCATION: 8 West 70th Street, New York, NY 10023

SCOPE OF CONSULTING: Speech-reinforcement sound system design and general room acoustics

COMPLETION DATE: Designed 2001 / Installed 2003

ARCHITECT: Stephen Tilly, Architect (preservation & restoration architect)

REFERENCES: Dr. Alan Singer, Executive Director (synagogue office: 212-873-0422)
Bob Gabalski, project architect (914-693-8898)

DESCRIPTION: This magnificent neo-classical style synagogue was consecrated in 1897 and restored in 2002. It is the fifth house of worship to be built in New York City by this Orthodox congregation (the oldest in North America). The stone exterior—with a heroic facade facing Central Park—and the highly decorated plaster and marble interior of the Large Synagogue (or main sanctuary) are in the popular Italianate style used for many public and religious buildings a century ago. The interior arrangement of the Large Synagogue and the congregation’s Orthodox worship reflect the heritage of the Spanish and Portuguese Jews who founded Shearith Israel. Worshipers are arranged in antiphonal (or “collegiate”) pews facing the Tebah in the center of the room. In the Orthodox tradition, men sit on the first-floor and women sit separately in the large three-sided balcony above. Sermons are given from the pulpit, located just in front of the Ark at the east end of the large and reverberant sanctuary.

For much of its history in the present building, Congregation Shearith Israel held Shabbat (Sabbath), Holy Day and Festival services using only the power of the talkers’ natural voices to fill the large, reverberant Large Synagogue. For the Hazan (cantor) and other Torah readers this has not been unduly difficult as they typically sing or chant the Scripture. For the rabbi, however, giving the sermon has always been a challenge in a space where clarity and natural quality of the spoken word is difficult to achieve. Even when sound amplification became practical in the middle of the 20th century, Jewish law forbade use of such equipment by observant Orthodox congregations. Eventually, an early version of such a sound system was installed in the Large Synagogue—this was replaced with a new, high-technology Shabbat speech-reinforcement sound system during the restoration project.

In order to ensure that the new Shabbat sound system was fully compliant with Jewish law, we worked with the Zomet Institute, a “Halachic engineering firm,” of Alon Shevut, Israel, for design-phase advice, review of the sound system construction documents, and inspection of the completed system at Shearith Israel. Our design is possibly the first Shabbat system which makes use of modern digital-signal-processing audio components and certainly the first ever with steerable line-array loudspeakers. Zomet’s engineers agreed with our position that this contemporary technology is just as appropriate for Shabbat sound systems as older analog equipment. The result is an electro-acoustically superior speech-reinforcement sound system for the congregation.

Acoustics advice—to be implemented in a future phase—will focus on materials and finishes which assist the Hazan’s unamplified voice as well as overall responsiveness of the sanctuary for this very participatory congregation, including consideration of carpet, pew cushions and a new reflective surface for the Tebah reading desk. Acoustic testing early in the project showed that the sanctuary is rather sound-absorptive and non-responsive on the main floor, but very reverberant and responsive in the balcony. By careful selection of materials we will work to make a more consistent acoustic character at both the men’s and women’s levels, enhancing the worship experience for everyone as well as further improving speech intelligibility.
THE LARGE SYNAGOGUE – VIEW FROM REAR MAIN FLOOR