A JBL INSTALLATION

JBL AT THE FRANKFURT OPERA

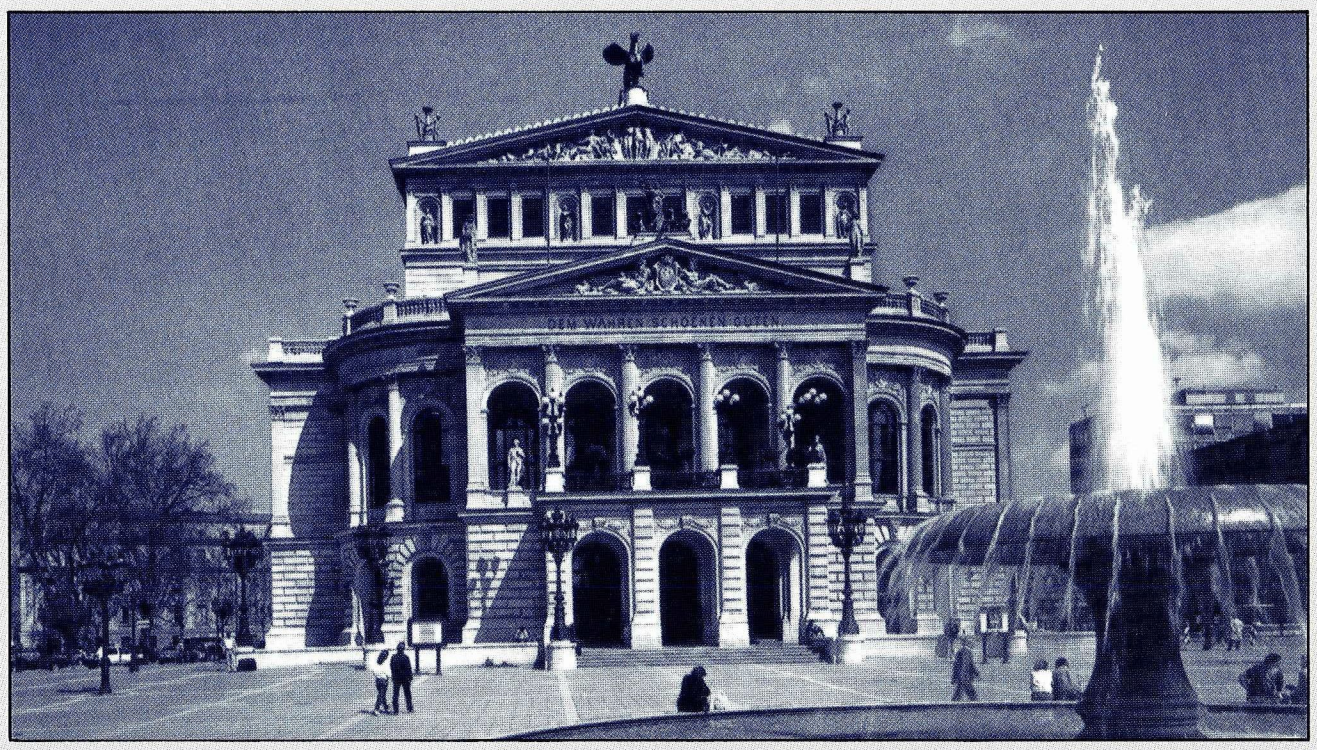
Almost forty years after it was destroyed, the Alte Oper in Frankfurt, West Germany, reopened as a multi-purpose cultural and communications center.

When originally built in 1880, the structure was dedicated solely to classical music. The new building, however, hosts performances not only of classical music but jazz and all forms of popular music. In addition, the space is available for large conferences and conventions.

Key to these activities is a superb new music and speech reinforcement system consisting of JBL transducers. There are two large arrays, one on each side of the performance area, and they can be independently adjusted in height, as required by the purpose at hand. Each array has been designed for flat power response and bandwidth. These are very important considerations for the reproduction of recorded music, which is a requirement in many ballet performances.

In laying out the arrays, attention was given to far coverage of the dress circle, near coverage of the main floor, and side fill for the small seating areas adjacent to the stage.

Near coverage requirements were met through the specification of two custom enclosures, each with a single model E120 driver, a model 2360 Bi-Radial™ horn with a model 2445 compression driver, and a vertical line array of four model 2404 ring radiators.



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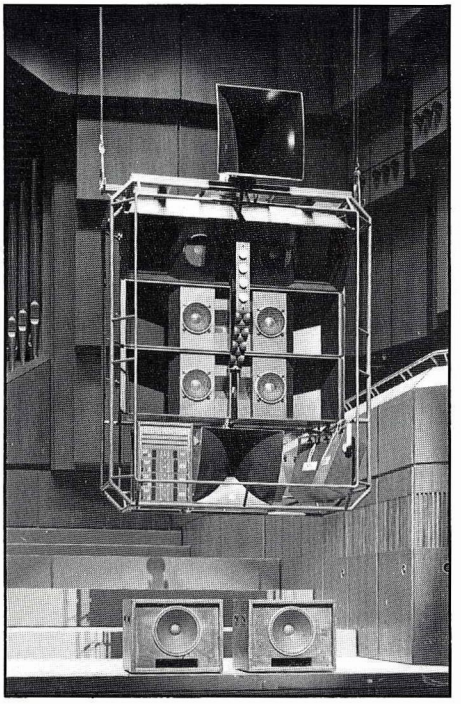
Far coverage requirements were met through the specification of four custom enclosures, each with a single model E120, a model 2366 Bi-Radial horn with a model 2445 compression driver, and a vertical line array of four 2402 ring radiators.

Side fill requirements were met with two three-way systems, each consisting of a model 2202 low-frequency transducer, the model 2344 Bi-Radial horn with the model 2425 driver, and a single 2404 ring radiator.

All of the three-way systems in the main arrays are supplemented below 75 Hz with subwoofer arrays consisting of four model 2245 transducers on each side. Because of size, the subwoofer systems could not be placed with the rest of the system, but instead are located at the stage sides in the reference plane of the main arrays.

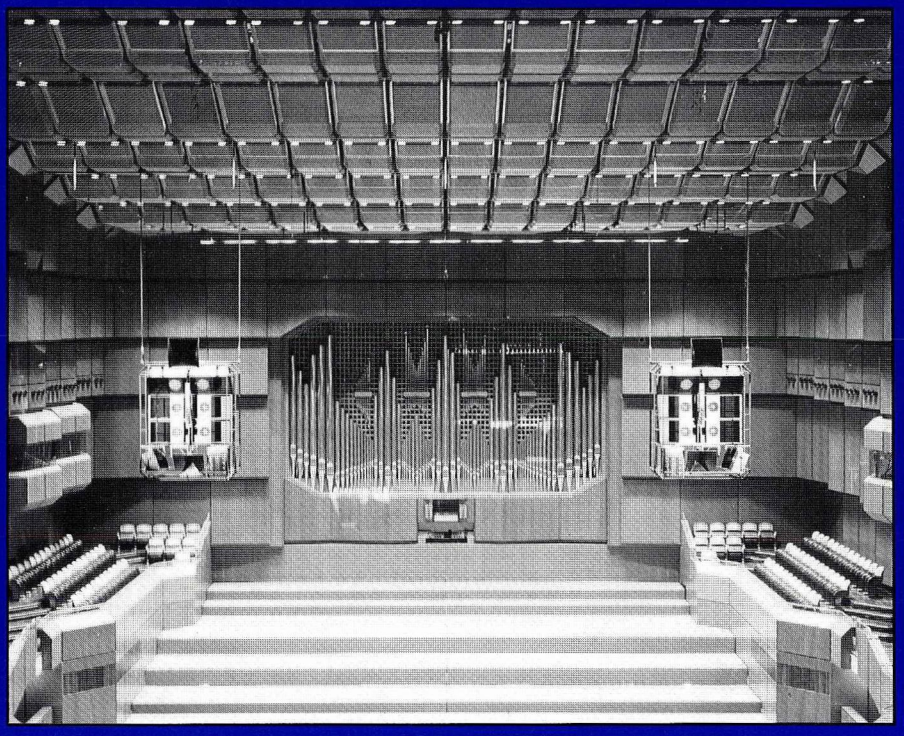


The two speaker clusters disappear into the ceiling when they are not in use.

Crossover frequencies for the near and far coverage arrays are 75 Hz, 800 Hz, and 7000 Hz. Power amplifiers for these arrays are located in the gondolas along with the transducers in order to keep line losses at a minimum. Only line level audio and AC power are fed to the gondolas.

Direct field levels in excess of 100 dB can be reached by each main array at the rear of the house, and in normal operation the system will be coasting.

Precise system coverage in the house was determined by JBL's Central Array Design Program (CADP). Speech intelligibility is excellent throughout the space, which has a volume of 27,000 cubic meters and reverberation time of 2 seconds in the mid-band.



CREDITS:

System Design and Construction:
Klein & Steck OHG,
Bissersheim, Germany

Date of Completion:
August, 1984

JBL Incorporated
8500 Balboa Boulevard
Northridge, California 91329, USA

Prestige – Frankfurt 9/88