

13. Development of Sound Environmental Presentation System

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The performances of sound environment are generally expressed in values, but it is difficult to sense the sound environment from the values. Thus, the authors developed a sound environmental presentation system that expresses sound environmental performance values as sounds and evaluates the performances in an auditory manner.

The system can simulate a sound environment separately for the 1) sound from outside, 2) sound transmission between rooms, 3) floor impact sound, 4) sound within the room, 5) sound from machines and equipment, and 6) clearness of voice (effects of reverberation), and reproduces the results in sounds. The simulation is achieved by using experimental data (in experiment facilities and actual sites) and research achievements (prediction methods), and sounds from any sound source can be reproduced when data on the sound source and the noise reduction by sound control measures is available. Because using sample sounds as the sound source data is possible to result in failure of reproducing the actual sound condition in a building in service, the system is equipped with a sound recording function for collecting actual sound source data in the building to assess. The system was built small and transportable to enable simulations to be made at actual sites.

Key words : sound environment, simulation, actual sound, performance evaluation