2:36

K7. New sound reinforcement system for the Kentucky Fair and Exposition Center. John V. Fricke and Robert C. Coffeen (Coffeen, Anderson and Associates, 5400 West 61st Place, Misson, KS 66205)

Freedom Hall, an 18 000 seat coliseum, which houses the University of Louisville Cardinals basketball team, the National Quarterhouse Championship Show, and many concerts received a new sound reinforcement system consisting of fourteen distributed loudspeaker clusters and three stage location clusters. The stage location clusters provide a time delay base for the remaining distributed clusters. The presentation examines the "distributed cluster" concept of providing a better sound reinforcement system for large audience spaces.

TUESDAY, 7 JUNE 1977 KELLER ROOM 405, 2:00 P.M.

Session L. (Poster Session) Architectural Acoustics II.

M. David Egan, Chairman

College of Architecture, Clemson University, Clemson, South Carolina 29631

Poster Papers

L1. Design, development, and field testing of a stable sound source for privacy testing between dwelling spaces according to ASTM Recommended Practise 597. Kenneth E. Barron, P. Eng., and Marcel T. Rivard (Barron and Associates, Consulting Acoustical Engineers, Vancouver, B.C., Canada V5Z 3K5).

The new ASTM Recommended Practise 597 for testing of privacy between dwelling spaces requires an accurate, calibrated, and stable sound source employing specially shaped *source* and *absorption* frequency spectra. This paper describes the sound source, its circuitry, electrical and acoustical performance as well as field experience during testing sessions. In addition to providing the special spectra, the remote, radio-controlled source provides several other spectra and functions frequently used by persons involved in acoustical testing.

L2. Recent field testing experience of privacy between dwellings using ASTM Recommended Practise 597. Kenneth E. Barron, P. Eng., and Gordon D. Hall (Barron and Associates, Consulting Acoustical Engineers, Vancouver, B.C., Canada V5Z 3K5)

Some recent experience with field testing of privacy between dwelling units using the method of the new ASTM Recommended Practise 597 is reported and the effects of airborne flanking paths on the ratings obtained is discussed. The results of the testing experience indicate that the single number rating provided by this new test method is approximately two points less than the Noise Insulation Class Rating (NIC) obtained by grading 1/3-octave-band noise reduction measurements according to ASTM 413. It is suggested that this new single number rating obtained from *A*-weighted sound pressure level differences utilizing the specially shaped source and absorption test spectra be called the *Privacy Index*.

L3. Prediction of the sound diffracted around barriers in large rooms using an extension of Maekawa's approach. R.A. Johnson, C.J. Hurst, and L.D. Mitchell [Westvaco, Covington Research Center, Covington, VA 24426 (RAJ), and Department of Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061]

A computer program has been developed for the prediction of sound pressure levels in large, irregular rooms utilizing a geometric acoustics approach. Experiments indicated that the program gave good predictive accuracy when receiver positions were in the line of sight of the sound source. However, the accuracy was poor when the receiver was out of the line of sight. The present discussion reports on the further development of the program to include diffraction effects using an extension of Maekawa's approach for thin screens and right-angle wedges. The program is capable of finding all valid diffracted rays which undergo three or fewer reflections before diffraction and three or fewer reflections after diffraction. Limited experimental work indicates good predictive accuracy.

L4. Acoustical solutions for SSA Headquarters. Ron Moulder (Owens-Corning Fiberglas Corporation, Granville OH 43023) and D.A. Harris (Owens-Corning Fiberglas Corporation, Toledo, OH 43600)

Speech privacy between closed-plan and open-plan work situations is the goal of the new Social Security Administration (SSA) Headquarters complex in Baltimore. Approximately 1.1 million square feet of office building is being procured by the U.S. General Services Administration (GSA) using the "Systems Approach." A key element is the "Performance Specification for Office Buildings" which establishes detailed criteria for the "in systems" portion of the building including structure, HVAC, Electrical Distribution, Finished Floor, Luminaries, Finished Ceiling and Space Dividers. The successful system offeror demonstrated system compliance in a technical proposal before submitting an installed and lifecycle cost bid. American Bridge, Wolf and Munier, and Owens-Corning Fiberglas, in joint venture, submitted the low bid. Prototype tests recently completed demonstrate full compliance. Since acoustical attributes affect each subsystem, the criteria includes reference to the PBS C.1 and C.2 test procedures among others. A summary of the procurement process, testing criteria, development parameters and solutions will be available.

L5. Computer-aided, interactive design routine for the prediction of sound levels in irregularly shaped factory spaces. J.M. Blanding (Union Carbide Corp., P.O. Box 8361, S. Charleston, WV 25303), L.D. Mitchell and C.J. Hurst (Department of Mechanical Engineering, Virginia Polytechnic Institute and State University, Randolph Hall, Blacksburg, VA 24061)

An interactive computer algorithm is presented which utilizes modified room acoustics theory to predict dB*A* sound pressure levels in regularly- and irregularly-shaped factory