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Architectural Acoustics Design using Diffusing Surfaces

James Heddle

James Heddle Pty Ltd, Unit 2315 / 180 Grey Street, South Bank, 4101 Brisbane, Australia

This paper reviews the design challenges and development of acoustic treatments for three acoustical design projects in Australia. The projects that will be outlined were a surround sound widescreen lecture theatre, a contemporary council chambers and the rectification of a problematic brass band practice room.

The treatments included sound diffusing surfaces of the geometric type with or without embedded amplitude reflection gratings. Where the gratings were used in multiples the designs also addressed periodicity issues using modulation of the grating patterns with the best known merit factors.

The design approach and the development of the acoustical surface features and treatments to solve the design issues, including problems experienced in the building phase, will be discussed.