Proceedings of The Institute of Acoustics

MUSIC COLLEGES: DESIGN EXPERIENCE

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The acoustical problems which are specific to schools of music and the music departments of universities and colleges are outlined below and will be discussed with special reference to the following buildings:-

Birmingham School of Music
Architects:- The John Madin Design Group. Opened 1973

Guildhall School of Music and Drama
Architects:- Chamberlin Powell & Bon. Opened 1977

Cambridge University School of Music
Architects:- Sir Leslie Martin & Partners
Under construction: first stage opened 1977

Sound Insulation
(a). Of the external envelope - containment of the noise generated by the school to be considered as well as its protection from external noise.

(b). Between rooms - Does the brief call for single-purpose rooms (e.g. practice, instrumental teaching, class teaching, lectures) or for a degree of multi-purpose use? The answer to this question can have great influence on the insulation requirements and consequently on the structure and cost of the whole building.

Musical Acoustics of Small Rooms
Principal differences from auditoriums and from most broadcasting studios are (a) that a distinction cannot be made between the near field and the reverberant field, and (b) that reflections are very quick and bunched and do not have any significant pattern, and (c)that all dimensions are comparable to the wavelengths of the lowest musical sounds. Suggest that one can conclude from this that:-
1). Shape and proportion of rooms are not in themselves important, but it is possible and desirable to check that dimensions give a favourable distribution of axial modes; non-parallel walls are unlikely to help in this, but they do reduce any risk of flutter echoes.

2). If, as seems to be true, a reverberation time of 0.5 - 0.75sec is desirable, the reason probably has more to do with control of loudness than with perceptible reverberation

3). Good diffusion is at least as important as it is in larger rooms and distribution of absorption over all the surfaces is desirable in order to improve diffusion.

Rehearsal/Recital Rooms

The largest room in a college usually has to fulfil both these functions. It does not share the characteristics of the smaller rooms, except perhaps that it does not have a very distinctive early reflection pattern. It differs from most auditoriums in lacking the permanent absorption of fixed or upholstered seating. This results in reverberation times which vary widely with the conditions of use; if designed for optimum reverberation under recital conditions such a room will be too live and too loud for rehearsals of orchestras and choirs. Adjustable absorption (e.g. curtains) is desirable and more efficient than in a seated auditorium.

What is the subjective difference between a given reverberation time obtained by a small volume with minimum absorption or by a larger volume with a correspondingly greater quantity of absorption? Suggest that in the case of rehearsal/recital rooms the large volume + large absorption solution is

1). Less sensitive to changes in occupancy
2). Has reflections longer delayed and weaker
3). Is less likely to be too loud for large choirs and orchestras