

## Proceedings of the Institute of Acoustics

### THE ACOUSTIC CONSULTANT - ROLE, RESPONSIBILITY AND RISK.

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What is a consultant? A consultant is someone who offers advice and help for financial reward, but this process must be within a framework of judgement and liability. Consultants operate in a variety of ways, either as a sole practitioner, someone like myself who is primarily employed by the University, or in a small practice or partnership with one or two employees, or in larger groups perhaps as a company with limited liability, and finally, as part of a large organisation, which nowadays may be a government agency. This latter function is interesting as the consultant can quite often offer a service to other groups in the organisation and also perhaps to outside clients.

What makes the Acoustic Consultant special is the breadth of the subject matter that is covered under this label, it is not just primarily a matter of noise control. The title acoustics consultant encompasses such diverse subject areas as medicine, architecture, engineering, planning and the environment, and under these headings the range of activities are enormous. For example, the medical field, it can include medical ultra-sonics, audiology, hearing-aid design and manufacture, synthetic speech and voice reproduction together with human factors. Architectural acoustics encompass problems associated with house design, broadcasting studios, concert halls, offices and airport terminals. In the broad area of engineering, the acoustics of machine design is important, so is the design of mechanical services for buildings, and as we all know, there are many noise control problems associated with transportation systems. Planning and environmental acoustics include support for all types of projects from airports to discos. The range of clients arising from these services is also extensive and may include private patients or individual citizens, health authorities, local or international governments, together with a wide range of business, industry and commercial organisations.

The consultant's report together with his recommendations may require the preparation of original work or make use of published information to design or build to agreed criteria, or to meet a special regulation. In all of these consultations, documentation supporting the recommendation is required. The documentation may take the form of 1] technical reports, 2] specifications and drawings, and 3] proof of evidence.

So far, this is a statement of the obvious, but deliberately so to register the complexity of the consultancy role. One question arising from this catalogue of work is that of qualifications. For example, how does a client know he is choosing an expert in hearing-aid design rather than a mechanical engineer, or someone specialising in planning enquiries? All may be listed as acoustical consultants. I believe there is a need for closer controls over consultant qualifications as they have a direct bearing on the quality of service offered, and the liabilities that can result if problems arise

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from a consultant's recommendations. It is here that the Institute of Acoustics becomes important in the UK and its relationship, particularly with the recently formed Engineering Council who have the responsibility for overseeing the training and education of chartered engineers, but what about the consultants who are not engineers? To add to the complexity are the potential problems arising from the mutual recognition within the European Community, implying that consultants can practise freely within all countries of the Community, and presumably also become vulnerable to the legal liabilities of a particular nation-state. Many European Community countries grant some graduates a legal status, particularly in such vocation as engineering and audiology. It will be difficult for the British graduate to gain this status without additional examinations.

How do consultants attract work? In the Association of Noise Consultants we agonised for years whether a consultant should advertise. I think now this issue has been resolved and it is generally recognised that responsible professional advertising is acceptable, but I suspect that the bulk of a consultant's business derives from knowledge of his skill and reputation and work flows essentially from word of mouth. But how do we advertise and what liabilities arise from these advertisements?

In my experience it is not uncommon for the consultant to begin to work on a project after a telephone call or a briefing meeting without any written statement of the final objectives, timescale, liabilities, or even a broad understanding of the project itself. Even when a written communication is received it is often vague on many of these important items. What is a consultant's liabilities under these circumstances? At the end of the project the consultant's recommendations often are subject to interpretation by the project management, a very common procedure in a large construction and development programme. It may take years before the consultant's recommendations emerge in their massaged form as a piece of hardware or a particular design feature in a building. What are the consultant's liabilities under these circumstances? How often is the consultant called back to check whether his recommendations have been fully accepted or modified or if the recommendations, when implemented, actually work? Maybe I am over-sensitive in this matter but after thirty years in acoustics I know this to be common practice. Maybe consultants should contractually require their clients the facilities to check the performance of the end product. It is not unusual for problems to arise because of lack of communication between consultant and client coupled usually with a vague set of original instructions. For example, one of the most notorious cases is that which occurred during the design of the Lincoln Centre in New York some 25 years ago. Bolt Beranek & Newman were accused of not providing a suitable acoustical environment in the concert hall and countered that their recommendations were modified and not carried out effectively. After much public wrangling and unfortunate publicity for the consultants, Professor Cyril Harris of Columbia University was called in to fix it and did so quite effectively.

All professional consultants carry some form of indemnity insurance to financially cover such problems that may arise but of course it is the reputation of the consultancy which can be harmed. The issues of responsibilities and liabilities are complex and I have attempted to raise some of the important factors, some of the problems are common to all consultants but some are unique to this particular profession.