

Spreading the Word

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Acoustics is an endlessly fascinating field, with a variety of ways to express your research, recommendations and insights to colleagues, clients and friends. Given this opportunity to do an editorial for *Sound and Vibration*, I would like to highlight some recent thoughts on teaching and communicating.

S&V does a wonderful job covering practical noise and vibration control engineering. It is entirely appropriate that some of the articles concentrate on fundamental concerns. Acoustical consultants must repeatedly concentrate on teaching fundamentals, maybe even more frequently than acousticians primarily involved in research.

All Materials are Acoustical. One of my favorite mantras is "all materials are acoustical." This might be so fundamental that we often overlook its importance, especially when dealing with clients.

Quite often – especially with new clients – discussions begin with a quick explanation: In very general terms, most materials either absorb sound or block sound, but rarely do both well. Of course this is frequency dependent, but I have always found this dichotomy to be a wonderful starting point. As an illustrative aside, one local manufacturer's representative often discusses spaces in which he has "added acoustics." We understand him to mean that sound absorptive treatment has been added, but I continue to look for an appropriate analogy to "adding acoustics." I often find that absorption may be added in the wrong places, or sometimes has been inappropriately added as an attempt to improve sound isolation. Sound familiar?

The next step in many of these discussions is to explain the four major categories for architectural acoustics: sound isolation, HVAC noise and vibration control, finishing treatment and surface shaping, and electronic systems design. Of course, there are exceptions, overlaps and even uncertainties about some of the definitions. In your field there may be similar categories.

There are ongoing discussions in the National Council of Acoustical Consultants (NCAC) about whether A/V designers are acousticians. I am convinced that persons involved in the design of recording or reproducing sound are practicing acoustics. On the other hand, if a consultant is involved only in the electronic transfer of data from one computer to another, this may not fall under the auspices of acoustics, even if these persons are working in an A/V group.

Classroom Acoustics. Much of the success of the new classroom acoustics standard comes from understanding basic acoustics and from sorting architectural acoustics into the four main categories mentioned previously. A very basic summary of the standard would contain four points, as follows:

- Background sound levels must remain appropriately quiet.
- Classrooms should not be excessively reverberant.
- Sound isolation should be carefully considered.
- Electronic sound systems alone should not be considered a substitute for low noise, little reverberation and proper isolation.

There are many other associated factors and ways in which these can overlap, including some recent studies indicating that excessive reverberation can start a snowball effect. Small increases in ambient sound are leveraged by the reverberant environment to result in overall noise levels that are significantly higher than would be predicted simply by changes in absorption.

Throughout the development of the standard, I was repeatedly struck by how members of the working team had sorted themselves into two groups, both with very valid points and concerns. One group, including myself, felt strongly that the standard should be developed with the KISS (keep it simple stupid) principal in mind, so that it could be more widely understood and more easily implemented. The other group tended to express concerns for greater precision and accuracy, with a nod toward advancing the state-of-the-art in materials and building techniques. Everyone listened to all arguments with great respect and patience, always with the common good of classroom acoustics in mind. The resultant standard is an excellent accomplishment of which we should all be proud.

The classroom acoustics standard tends toward simple calculations, single number descriptors and the KISS principal. I am convinced that following the standard will result in vastly improved educational facilities. Please do not forget that much work remains. It is no surprise that there is some opposition to this standard, concentrating on a claim that the standard is not in the public's best interest! Also, there will remain opportunities for further development of the standard, both in terms of its precision and accuracy, as well as relationships to materials, equipment and the building and

renovation of schools. But now we have one crucial common reference: ANSI Standard S12.60.2002.

NCAC. This year marks the 40th Anniversary of the National Council of Acoustical Consultants and I am very proud to be associated with the its many fine members. NCAC is primarily a business association of member firms. To that end, we are involved in quite a variety of activities, ranging from topical seminars to member involvement in the classroom acoustics standard.

Perhaps you will agree that education is a primary concern for acousticians. Of course, NCAC remains committed to promoting the education of acoustics in all of its various forms, but there are many other valuable aspects of professional societies such as NCAC. The mission statement of the NCAC is "enhancing the stature and effectiveness of the acoustical consulting profession for the mutual benefit of the public and the member firms." This is a fairly broad mission, and you might even ask, "What's in it for me?"

I have found the benefits of professional societies such as NCAC to be profound and invaluable. There are both tangible and intangible benefits, all adding up to a vastly improved consulting business. Of course there are costs, including time, money and travel, but we understand the tremendous benefits.

Tangible benefits of NCAC membership include access to a variety of new ideas and techniques, such as the NCAC Forum (available only to NCAC members), an online method of asking questions to our membership at-large with helpful responses. There are also the results of some of our group efforts, such as the classroom acoustics standards discussed above, which are bound to benefit everyone. Less tangible but still important are the benefits of collegiality and recognition. My many friendships in NCAC are valuable for their support and encouragement, and NCAC membership immediately confers a quality of authority. I return from each of our meetings with new enthusiasm and confidence.

Based on the growth of NCAC and the virtual absence of firms that have left the fold, I am not alone in realizing the benefits of our professional societies. I heartily invite you to investigate membership in NCAC and/or other professional societies, and to increase your involvement. Now please, go and spread the word!

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