

THE ASA TECHNICAL COMMITTEE ON NOISE:

AN OVERVIEW

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Noise is often defined as “unwanted sound.” Everyone is affected by noise, whether it occurs in the workplace, at our homes, or in the natural environment. Noise can interfere with speech communication and can mask warning signals. City traffic, aircraft flying overhead, and the neighbor’s air conditioner are examples of noise sources that cause annoyance. High levels of noise can contribute to hearing loss.

The purpose of the Acoustical Society of America (ASA) Technical Committee on Noise is to increase and diffuse knowledge of noise generation and propagation, passive and active noise control, and the effects of noise. Activities of the Committee embrace the practical and theoretical aspects of noise, in its broadest definition, in all areas of acoustics. This is a broad swath indeed. When you consider that specific interests include the following and similar topics—sound sources, source mechanisms, propagation, perception, prediction, measurement, evaluation, analysis, effects, regulation, mitigation, and legal aspects of noise, it is clear that Noise touches nearly every other committee in the ASA. To maintain contact over this broad range of activities, the roster of TC-Noise members is relatively large, currently over 80 members. The TC-Noise website is hosted at www.nonoise.org/quietnet/tcn/.

Noise and noise control have been a major part of the Acoustical Society of America since its inception in 1929. An excellent summary of the history and contributions of the ASA to the field of noise and its control was given by Leo Beranek and William Lang in their History Lecture in Noise, on the occasion of the ASA’s 75th Anniversary (Beranek and Lang, 2004). Noise surveys, the development of sound level meters and noise analyzers, and the initiation of standards activities by ASA

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members were key activities in the early days. In 1960, the ASA Technical Committee on Noise was formed and the organizing of special sessions under the Noise banner began. Special sessions are an important part of TC-Noise. They help deal with the diversity of technical activities in noise, by bringing together similar papers, drawing together in a single ASA meeting contributions that might otherwise be spread over several meetings. Typically, there will be four or five special sessions at an ASA meeting having Noise as the lead sponsor.

In 1971, the Institute of Noise Control Engineering (INCE) was formed as a professional society sensitive to the needs and responsibilities of noise control engineers. Cooperation between ASA and INCE is vital, and one of the main roles of the TC-Noise is to provide an interface between ASA and INCE. To this end, nearly all members of TC-Noise are also members of INCE. Cooperation between the two organizations is essential to maintain a world leadership position in noise, to address issues of mutual concern such as a new national noise policy and standards activities, and to coordinate timing of meetings. Very successful joint ASA/INCE meetings have been held in State College (1997), Newport Beach (2000), and Minneapolis (2005).

In 1981, a new standards committee, S12 Noise, was formed with the responsibility of developing and maintaining standards in noise in accordance with procedures approved by the American National Standards Institute

(ANSI). The scope of S12 is: “Standards, specifications and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation and control, including biological safety, tolerance and comfort and physical acoustics as related to environmental and occupational noise.” Participation in both national and international standards activities is essential to maintain competitiveness in the international market place.

Great success has been achieved recently toward improving acoustics in the classroom, with contributions from members of the Technical Committees on Noise, Architectural Acoustics, Speech Communication, the ASA Committee on Standards and others. This team effort arose through a series of workshops that were organized to determine how the ASA could become more involved in societal issues, gaining momentum with each meeting. Information booklets have been developed, Classroom Acoustics I (TC-AA, 2000) and Classroom Acoustics II (TC-SC, 2002), both available for free download at http://asa.aip.org/map_publications.html. In 2002, we saw the landmark publication of the ANSI S12.60-2002 standard “Acoustical performance criteria, design requirements, and guidelines for schools,” in which the essential acoustical requirements of a classroom are specified. There remains the considerable challenges of seeing that the recommendations of this ANSI standard are actually put into use and working with industrial groups to see how practical acoustical solutions can be achieved. See the *Acoustics Today* articles by Nelson (2005) and Lubman (2005) for more information.

There has been ongoing effort within TC-Noise to understand soundscapes, as a forum for addressing issues related to environmental noise, urban

and natural. Physical measurements, such as A-weighted sound levels, provide only a partial characterization of an acoustical environment. To interpret noise annoyance or shape the subjective impression of a space, sociological and psychological aspects must also be considered (Schulte-Fortkamp, 2002).

Work continues on improved noise control solutions. Examples of passive approaches currently being examined are the “drum silencer” to reduce the noise in ducts (Choy and Huang, 2002) and the absorption of noise using micro-perforated panels, the topic of a special session at the Spring 2006 ASA meeting in Providence. Active noise control, having moved beyond the initial hype, is now a mature field with an expanding number of applications. Noise reduction headsets are now in common use on airplanes. An article by Kemp and Clark (2003) discusses how active control can reduce noise levels in a rocket fairing.

Thus, in the field of noise and its control, there has been steady progress on many fronts. There have been notable achievements for improved classroom acoustics, although continued efforts are required to achieve its widespread acceptance. But the world continues to be a noisy place. We’re not done yet.**AT**

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