

NOISE/NEWS

INTERNATIONAL

Volume 14, Number 2
2006 June

*A quarterly news magazine
with an Internet supplement published
by I-INCE and INCE/USA*

ASA-INCE/USA Synergy

**Workshop On Noise Policy
Developments—Q & A**

**First Announcement:
NOISE-CON 2007
See page 54**

**MEMBER SOCIETY PROFILE
French Acoustical Society
See page 55**



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Cover Photo:

Fireworks celebrate the grand opening of the remodeled Reno-Sparks Convention Center, venue for NOISE-CON 2007.

Courtesy of Reno-Sparks Convention and Visitors Authority

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NOISE/NEWS

INTERNATIONAL

The printed version of Noise/News International (NNI) and its Internet supplement are published jointly by the International Institute of Noise Control Engineering (I-INCE) and the Institute of Noise Control Engineering of the USA (INCE/USA).

I-INCE

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of societies concerned with noise control and acoustics. I-INCE, chartered in Zürich, Switzerland, is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering, and, with the Institute of Noise Control Engineering of the USA, publishes this quarterly magazine and its Internet supplement. I-INCE has an active program of technical initiatives, which are described in the Internet supplement to NNI. I-INCE currently has 46 Member Societies in 39 countries.

INCE/USA

The Institute of Noise Control Engineering of the USA (INCE/USA) is a non-profit professional organization incorporated in Washington, D.C., USA. The primary purpose of the Institute is to promote engineering solutions to environmental noise problems. INCE/USA publishes the technical journal, *Noise Control Engineering Journal*, and, with I-INCE publishes this quarterly magazine and its Internet supplement. INCE/USA sponsors the NOISE-CON series of national conferences on noise control engineering and the INTER-NOISE Congress when it is held in North America. INCE/USA Members are professionals in the field of noise control engineering, and many offer consulting services in noise control. Any persons interested in noise control may become an Associate of INCE/USA and receive both this magazine and *Noise Control Engineering Journal*.

NNI Internet Supplement

www.noiseneewsinternational.net

- Links to the home pages of I-INCE and INCE/USA
- Abstracts of feature articles in the printed version
- Directory of the Member Societies of I-INCE with links, where available, to the Member Society Profiles and home pages
- Links to I-INCE Technical Initiatives
- Calendar of meetings related to noise—worldwide
- Links, where available, to NNI advertisers
- Links to news related to the development of standards
- Link to an article “Surf the ‘Net for News on Noise,” which contains links to noise-related sites—worldwide

Challenges and Changes in INCE/USA

One of the duties of the INCE/USA President-Elect is to prepare an Evaluation Report for the Board of Directors prior to being formally elected to the INCE/USA Presidency. Being in the unique position of a second time President, rather than doing a "Re-Evaluation Report," I took the time to examine the past reports since my first term as President in 2001. My particular interest was to identify those issues that have tended to reoccur over that time period, consider what has and is being done to address them, and determine if there are some "hardy perennials" yet to weed. The intent in this brief column to complement the very thorough *INCE Update* written by our most recent Past President, Jerry Lauchle, and as published as an article in the March 2006 issue of *Noise/News International*.

One of the recurring evaluation topics has been the financial health of INCE/USA. Overall, the finances of INCE/USA have been very difficult to understand as the income and expense of our NOISE-CON and INTER-NOISE conferences are wrapped-up with our ongoing operational budget. The conferences provide large swings in both income and expense that are not all accounted for in any one fiscal year. So, at times, we can have what appears to be a big surplus of funds, such as the case reported in the *INCE Update* article in the last *NNI*, while at other times a "negative surplus." When we separated out operations including the expenses of publishing of *NNI* and *NCEJ*, and staff services and the income of dues, library subscriptions, advertising, and publishing contributions from I-INCE, we got a clear, but not rosy picture of INCE/USA finances. Fortunately, the annual shortfall we have had has been reduced by net income from conferences and, in particular, from INTER-NOISE Congresses organized by INCE/USA. As the number of these INTER-NOISE Congresses in the USA have declined, this source of income to INCE/USA has dwindled. The reason I go into all this detail about finance is that balancing our operational budget has been one of the motivators behind some of the changes you have and will see in INCE/USA.

One of the more visible changes you will see this year is the switch to electronic publishing of *NCEJ*.

This will not only reduce printing costs, but it will provide better service to those library subscribers who demand that type of distribution. It will also enable wider access to articles in the Journal through the Internet consistent with the vision making *NCEJ* a premiere source of noise and vibration control technology. For us INCE/USA members, hopefully, the trade-off of a hard copy versus the searchability and storage compactness of electronic versions will be a good one.

Another recurring topic in the Evaluation Reports has been the two-year term for the INCE/USA President. The original motivation for this came from past presidents who felt that one year (two Board of Directors meetings) was just not sufficient time to learn the job and be productive. Recently, it also became tied to providing more continuity in the leadership of INCE/USA. This in turn was tied to the realization that, from a financial perspective, some of the existing staff functions needed to return to a more volunteer basis. In recent years, the administration of INCE/USA was divided into two separate paid staff functions, the Business Office and the Executive Director. Because of somewhat overlapping responsibilities of these functions and the interest to reduce operating expense, the Board of Directors approved the concept of a volunteer, non-paid Executive Director with more narrowly defined duties. At that time, a search/nomination committee was formed. As a result of that activity, Joe Cuschieri was selected by the Board to fill this position as of 2006 May 15. Complementing this was the Board decision to enact the two-year term of office for President. To support these two volunteer leadership positions, the contributions of other INCE/USA Officers, Directors, and Committee Chairs will be of even more significance.

There were three additional recurring issues which I will mention, particularly for INCE/USA members to consider and help, where possible. These are: papers for *NCEJ*, improving NOISE-CON Conferences, and adding membership. In each of these there has been, and still are, initiatives under way to address them, however, they probably best fit into the



Paul Donavan
2006-2007 INCE/USA
President

continued on page 75

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INCE/USA Online

A few weeks ago, I went back to an article that appeared *NNI* and later was put online at the INCE/USA web site. It was written by my colleague Bill Lang and me, and was titled "Surf the Web for News on Noise." I was quite surprised to see that it appeared in the 1999 December issue of *NNI*, almost an eternity in Internet time. The article was divided into international, regional, and national resources, and further divided by country for the national resources section. From time-to-time I am asked to make a change in the online version, but other than infrequent updates, the article is the same as it was in 1999.

The Pan-American News Department in this issue contains a brief description of the National Academy of Engineering project, "Technology for a Quieter America," which I chair. In connection with that project, I have been collecting a list of Internet URLs that cover many noise-related activities within the United States government and elsewhere. In addition, working closely with our European editor, Bernard Berry, a list of URLs for activities of the European Union and other activities in Europe has been compiled. Thus, it seems timely to produce a second article that updates the 1999 version.

The question is "How useful is a print version of an article full of links to web sites when the links are not active?" The answer is probably "not very," which therefore points us to the obvious solution, we need to make more use of online content that is frequently updated, and with easy links to it from the International INCE web site and other national INCE web sites. Furthermore, our presence on the web should not stop with lists of URL's, but should extend to the availability of articles and papers online.

This brings me to other online activities of INCE/USA. Through a major effort by Courtney Burroughs, Editor-in-Chief of *Noise Control Engineering Journal*, most of the papers from NOISE-CON conferences beginning in 1996 are now online at a

web site hosted by the American Institute of Physics (AIP). I have recently been assisting INCE/USA with the CD-ROM of current issues of *NCEJ* which will be published later this year, and which will contain papers from back issues of the Journal beginning in 2001. I am hopeful that these papers will also come online in the near future.

Last January the Board of INCE/USA expressed its support to a project to be undertaken by the INCE Foundation to scan all of the back issues of *NCEJ* from 1973 to 2000 and produce a CD-ROM. The INCE Foundation gave preliminary approval for this work in late 2005—subject to an accurate estimate of costs. The estimates have been made, the project is approved, and the goal is to have the CD-ROM completed by the time of the INTER-NOISE Congress in December 2006. AIP is doing the scanning, data preparation and replication of the CD. This will then be another online source of papers for INCE/USA. With the addition of online papers from the more recent INTER-NOISE congresses—at least those organized by INCE/USA—there will be a very large collection of papers online that will benefit, noise control engineers as well as libraries and other institutions.

Where does *NNI* fit into this structure? Our current Internet supplement needs more support to properly maintain. Recently, each issue has been available in portable document format (PDF) as part of the editorial process. In this format, issues could be placed on the *NCEJ* CD-ROM, and/or selected articles could be placed online. This subject has not been considered by either the INCE/USA or the International INCE Boards, but should be discussed by both groups by the end of 2006. It would be nice to begin 2007 with a plan for a soft version of *NNI* and/or its feature articles. Reader comments are welcome. 📄



George Maling

Managing Editor

Noise-Con 2007

FIRST ANNOUNCEMENT



The **Institute of Noise Control Engineering/ USA** (INCE/USA) is pleased to announce that Reno, Nevada, the "Biggest Little City in the World," is the site for **Noise-Con 2007**. The event will be held **22-24 October** at the **Grand Sierra Resort and Convention Center** (formerly the Reno Hilton and for more than 25 years the site for the annual AIAA meeting). The Grand Sierra is now undergoing a multimillion-dollar renovation; the meeting and guest rooms will be totally refurbished by the time NC07 participants arrive.

Stephen Hambric, of Penn State University, is General Chair for NC07, and Stephen Conlon, also of Penn State, is the Technical Chair. They are working closely with the INCE Technical Activities Committee (chaired by Patricia Davies) to organize technical sessions for the conference. We encourage anyone interested in helping organize sessions to contact the conference chairs at sah19@only.arl.psu.edu (Hambric) or scc135@psu.edu (Conlon).

Plans are still being finalized for the event, which will feature many sessions on noise control issues and a large vendor exposition with displays of materials, instruments, and services in noise and vibration. A reception is planned at the National Automobile Museum, which displays more than 200 antique, vintage, classic, and special-interest cars from 1892 to present, the majority of which are from the world famous collection of the late gaming pioneer and car buff Bill Harrah.

Noise-Con 2007 promises to be the premier noise control engineering conference of 2007. **Check the INCE/USA Web site (www.inceusa.org) often for new information on the event.**

Member Society Profile

French Acoustical Society

For nearly 60 years, the French Acoustical Society (SFA) has promoted research and disseminated research findings on scientific and technical information on acoustics, while also serving as the focal point for all French-speaking acousticians. Formed in 1948 as the Group of French-Speaking Acousticians (GALF), the current organization has grown to about 1,000 members representing diverse interests, including engineering, research, education, architecture, law, medicine, and more.

Members of SFA, who come from many countries including France, are organized into nine specialized groups according to their specific interests in the broader field of acoustics. These specialized groups are: electroacoustics, metrology and signal processing, aero- and hydro-acoustics, French-speaking oral communications, musical acoustics, physical, undersea and ultrasound, architectural acoustics, industry and environment, and hearing. A board whose current president is Jean Kergomard coordinates the activities of SFA.

A founding member of the new European Acoustics Association, (EAA), formed in 2000 with member societies from 27 countries, SFA regularly hosts conferences, seminars, and other training opportunities. The group organized Inter-Noise 2000 in Nice, an event that drew 1,300 participants and still stands as the largest ever Inter-Noise Congress. They will serve as one of the sponsors of Acoustics 2008 to be held in Paris.

SFA is also a founding member of I-INCE.

The association is deeply committed to training at all levels. They are especially interested in reaching students, thus enabling them to benefit from recent advances in acoustical research. To this end, SFA encourages education at all levels, from fundamental courses to continuing education. The association has developed an on-line directory of education and training opportunities for its members.



SFA supports research in another significant way: In collaboration with the French Committee of Physics, SFA annually awards grants to help French researchers present their work at international Congresses. The association also recognizes the contributions of its members with special medals and prizes. These include the distinguished French medal given to an SFA member who contributes significantly to the promotion of French acoustics, the Chavasse prize awarded to an established researcher, the Yves Rocard prize presented to a young researcher, and others.

International exchanges are encouraged, and foreign researchers are honored for their work. SFA has established working relationships with other national acoustical societies, which has facilitated many collaborative activities such as joint sponsorship of conferences, exchanges of articles in national publications, invitations to leading acousticians, and so on.

Complete information about SFA is available on the association's Web site (www.sfa.asso.fr) or by email: sfa4@wanadoo.fr 

This is the 54th in a series of articles on the Member Societies of International INCE.

ASA—INCE/USA Synergy*

Gerald C. Lauchle, 2005 President INCE/USA

The Pennsylvania State University, Graduate Program in Acoustics, 218-B Applied Science Building, University Park, PA 16802

Introduction

The roles and interests of the Acoustical Society of America (ASA) and the Institute of Noise Control Engineering of the USA (INCE/USA) have much in common. The very successful joint meeting of the two societies in Minneapolis in 2005 demonstrates the mutual benefit of coordinated activities. This article reviews the history of the ASA – INCE/USA relationship and proposes several areas in which closer collaboration between these organizations might provide greater benefit to their memberships, the global acoustics community, and society.

The ASA was formed in 1929 with the purpose to increase and diffuse the knowledge of acoustics and promote its practical application.¹ The present membership, in excess of 7000, come from many diverse fields: physics, engineering, oceanography, biology, physiology, psychology, architecture, speech, and music. Since 1931, the ASA has been under the umbrella of the American Institute of Physics (AIP). The ASA continues to promote the use of technical groups and committees for intra-Society communication, to hold regular professional meetings, to publish *The Journal of the Acoustical Society of America (JASA)*, to develop acoustics-related standards, to offer awards for distinguished achievement in acoustics, to

re-print out-of-print classic works, and to keep members apprised of acoustics news through its various periodicals.

The INCE/USA strives to advance the frontiers of knowledge, elevate the standards of professional excellence, stimulate technical progress, inform

the public of technical developments, and apply technical progress to satisfy the needs of mankind for a quieter environment in which to work and live.² The Institute is organized similarly to the ASA. It is served by a group of volunteer officers, including

five vice presidents, a Board of Directors, committees, and a paid staff. It publishes the bimonthly refereed journal *Noise Control Engineering Journal (NCEJ)* and the quarterly magazine *Noise/News International (NNI)*, as well as the proceedings from its NOISE-CON and INCE/USA-hosted INTER-NOISE conferences. An important function of INCE/USA is the recognition of noise control professionals through its rigorous board certification program—approximately 17 percent of the more than 1000 members are board certified. The International Institute of Noise Control Engineering (I-INCE) was fostered by INCE/USA and founded in 1974.

Background³

In the 1950s and 60s there were acousticians doing work in the area of

acoustic noise and its control, leading to the discipline called noise control engineering. Unfortunately, this small group practicing noise control engineering found it was difficult to get their papers published in the research-oriented, *JASA*. Under the leadership of 1954–55 ASA President, Leo Beranek, the Society began publishing the magazine *NOISE Control* to provide a forum for noise and noise control papers. It was during this time that the Technical Committee on Noise (TCN) was established. Nevertheless, there were members of the Executive Council who believed that the magazine should cease to exist because of the small number (~ 9 percent) of members interested in noise. A compromise was reached. The magazine was renamed *Sound* and published practical papers in areas of acoustics other than noise. For various reasons the production of *Sound* ended in 1963. In 1972 ASA and INCE/USA initiated the publication of *Noise/News*, a bimonthly newsletter.

Although the ASA Technical Council was formed to serve as a channel of communication between the technical committees and the Executive Council, during the 1960s the TCN was unable to adequately meet the needs of the increasing number of noise control engineers. A major reason for this growth was the National Environmental Policy Act of 1968, which led to the establishment of the Office of Noise Abatement and Control within the U.S. Environmental Protection Agency. Many members of the TCN

*NEPA Led to
the Establishment
of INCE/USA*

* In order to inform members of the Acoustical Society of America of these activities, this article is also being published in *Acoustics Today*.



SYNERGY

INCE

realized that there would be significant emphasis on noise in the future and that an organization was needed to promote professionalism in the field of noise control engineering.

In January 1971, a workshop on noise control engineering was held at Arden House in Harriman, NY, with Leo Beranek as Chairman and Bill Lang as Co-chairman. They kept the ASA and other related societies fully informed of the goal of this workshop—to form a new professional organization devoted to the practice of noise control engineering. The majority of the workshop participants were members of the ASA; it was agreed that a close relationship between ASA and the new organization would be fostered. The Institute of Noise

Control Engineering of the USA was incorporated in Washington, DC, in June, 1971. Leo Beranek became the first President; and John Johnson, the President of ASA at that time, fully endorsed this incorporation. Dr. Johnson later served as President of INCE/USA in 1980.

The relationship between ASA and INCE/USA continues to be strong; an ASA-INCE/USA Agreement presently exists.⁴ The purpose of the Agreement, "... is to provide for cooperation in the holding of certain meetings and in the publication of certain educational periodicals." Because the Agreement will expire in June, 2006, it is important to highlight some of the details of the present Agreement and to suggest some areas which might be included in its next iteration.

Standards

The ASA is secretariat for American National Standards Institute (ANSI) Committee S12 Noise. INCE/USA is an organizational member this committee with a representative appointed by the INCE/USA Board of Directors.⁴ A recent example of ASA-INCE/USA collaboration in the area of standards is ANSI S12.60-2002 on classroom acoustics.^{5,6} This standard includes acoustical criteria and design requirements for control of noise and reverberation in classrooms and other learning spaces. There were 54 participants in the working group that prepared this standard; 15 of this group were members of both ASA and INCE/USA, 21 were members of ASA only, and 2 were members of INCE/USA only.

Participation of our organizations in the development of international standards in acoustics and noise control (through the International Organization for Standardization and the International Electrotechnical Commission) is less obvious. There is limited participation by our acoustics experts in reviewing documents as they are being developed. Perhaps a reason for this is the financial burden on U.S. experts to attend international meetings. The present author is not in a position to earmark ASA or INCE/USA funds for such travel, but the topic is one that needs discussion and resolution by the standards leaders of our two organizations. This is important because it will benefit USA manufacturers, workers, and consumers.

Federal and state governments are expected to increase funding for the development of alternative sources of electrical power such as the use of multiple wind turbines on wind farms. There have, however, been some significant violations of community and recreational land-use noise ordinances due to some of the wind farms now in operation. Several areas need the input of acoustical experts.⁷ Acoustical standards must be developed for wind turbine noise measurement and for the instrumentation used to measure this noise. The microphones on most sound level meters are only useful down to 20 or 30 Hz, but wind turbines generate emissions at frequencies lower than 20 Hz. The proposed new instrumentation standard will address this issue. The human and animal response to these very-low frequency sounds also needs careful study. Although not part of standards development *per se*, acoustical experts from INCE/USA, ASA, and the National Council of Acoustical Consultants (NCAC) should be available to assist local authorities in the development of noise ordinances applicable to wind farms.

Meetings

The first collaborative meeting of ASA and INCE/USA was held on the occasion of the United States' bicentennial celebration. The semi-annual ASA meeting and INTER-NOISE 76 were held back-to-back in different hotels in Washington, DC. Unfortunately, separate fees were charged for registration which made it difficult to have reciprocity of badges between the two meetings. Those conferees interested in attending both meetings were not happy because of the additional fee required; thus, there was little cooperation or interaction during these 1976 meetings. Fortunately, those early problems have been corrected; and ASA and INCE/USA have had three fruitful joint meetings within the last decade: 1997 at State College; 2000 at Newport Beach; and 2005 at Minneapolis. In 2006, the 152nd Meeting of the ASA will be held back-to-back with INTER-NOISE 06 in Honolulu; both meetings are co-sponsored with the Acoustical Society of Japan and INCE/Japan, respectively.

Clearly, there is an ongoing effort to continue having joint meetings with a goal of two per decade. A joint meeting is one of the best ways to get members of both organizations together for professional collaboration and social interactions. Joint meetings strengthen the tie between the Technical Council of ASA and the Technical Activities Board of INCE/USA

because it is the members of these groups that suggest and organize the technical sessions of the meetings.

The executive boards of ASA and INCE/USA must develop and refine the policy for holding joint meetings, including a master "memorandum of understanding" that can

be used (with appropriate modifications) for each succeeding meeting. Key elements of the policy would include: the selection of venues, dates, and chairs; hotel negotiations; financial management;

short courses; seminars; manufacturers' exposition; social events; and management of printed materials including programs, proceedings, and CDs.

USA Noise Policy

The National Academy of Engineering (NAE) has initiated a project to collect and analyze data from government and private-sector sources on the impact of noise on the quality of life, the current state of noise control technology, the role of noise control technology in international competitiveness, and the impact of all of the above on noise policy. The study is expected to develop recommendations for public- and private-sector action to reduce the adverse effects of noise. The development and execution of the NAE noise initiative is being undertaken in two distinct steps: 1) A workshop was held on 13-15 September 2005; a prospectus for a consensus study has since been prepared and approved. 2) A consensus study will be conducted over a 30-month period by the NAE staff and an appointed committee made up of experts from several areas of acoustics and noise control. It will involve a variety of fact-finding activities such as additional workshops, background research, commissioned papers, and informal interviews. The result will be a consensus report with specific findings and recommendations for a follow-on implementation effort. This important project will involve many individuals from ASA, INCE/USA, and other professional societies, e.g., the Society of Automotive Engineers (SAE), the American Institute of Aeronautics and Astronautics (AIAA), the American Industrial Hygiene Association (AIHA), and others. The teamwork will provide an opportunity for strong collaboration between ASA and INCE/USA and an opportunity for *outreach* to other professional organizations that deal with some aspect of acoustics or noise. The important end result of this teamwork will be a possible new national noise policy that will replace the presently-ineffective Noise Control Act of 1972.

Wind Turbine Noise Requires New Acoustical Instrumentation Standards

Following this NAE consensus study, additional policies may need to be developed at the state and municipal levels because there are different needs. Again, ASA and INCE/USA acoustical experts should participate in these policy developments.

International Activities

Over the years, the ASA and INCE/USA have encouraged growth internationally in both acoustics and noise control engineering. Our organizations have contributed substantially to the International Commission on Acoustics, to the International Congress on Acoustics, and to International INCE; these organizations facilitate international cooperation. Most of the world's leading acoustical and noise control organizations are now members of I-INCE which promotes the annual INTER-NOISE series of congresses.

Over the past few years there has been an initiative within I-INCE to define and promote the implementation of a global noise control policy.⁸ The policy concentrates on three major areas: 1) occupational noise, 2) community and environmental noise, and 3) consumer product noise. It would encourage individual professional organizations to help their respective governments establish local noise policies and regulations, while the international bodies could provide standards and criteria for the evaluation of noises of concern. Many members of the ASA and INCE/USA have contributed significantly to this effort, and it is clear that their cooperative leadership role in this crucial area will continue. More and more of our members will likely become involved in these types of activities as both the USA and global noise policies evolve and become legally enforceable. It is important that the Executive Council of ASA and the Board of Directors of INCE/USA continue to support this involvement by creating new, or maintaining existing, working groups and committees to work with the international community.

Publications

The present Agreement⁴ specifies that INCE/USA and International INCE (I-INCE) jointly publish *Noise/News International*, the magazine that replaced *Noise/News* in 1993. Although ASA has no financial obligation to the magazine, it has agreed to provide information that may be published in *NNI*. Such information might include a list of titles of recent *JASA* articles related to noise as well as news on standards. Occasionally full articles related to noise from *JASA*, meeting information, and other noise-related news of the ASA may be published. As a member benefit, *NNI* is distributed (at a nominal cost to ASA) to those ASA members who are not members of INCE/USA but whose primary technical interest is in noise.

As the two organizations prepare a new agreement of cooperation, it is important that the respective Editors of *JASA*, *NCEJ*, *NNI*, and *Acoustics Today (AT)* collaborate in preparing statements of mutual interest in the publications arena. It is very likely that *JASA* and *NCEJ* will remain independent of each other because of their respective charters and readership. On the other hand, *NNI* and *AT* may share several areas of common interest. As noted in the previous paragraph, there is specific information that may be provided by ASA for publication in *NNI*. It is recommended that such directives become reciprocal in the next iteration of the Agreement, e.g., *AT* could publish certain INCE/USA news items that would be of interest to ASA readers. Because both *NNI* and *AT* contain commercial advertisements, perhaps new options may be offered to those sponsors wishing to advertise in both publications.

Hearing Conservation

Another area of collaboration between ASA and INCE/USA is in hearing

conservation. Some ASA members whose primary interests are in noise, physiology, psychology, and speech are deeply concerned about hearing loss due to acoustic phenomena. There are likewise many INCE/USA members that share this concern. One forum where collaboration might be enhanced is by

representation on the Council for Accreditation in Occupational Hearing Conservation (CAOHC). This Council was organized to elevate and maintain the quality of occupational hearing conservation, to establish and implement standards, and to certify those who meet those standards. Although INCE/USA is one of the nine component professional

organizations that make up CAOHC, the ASA is not. Because the two current CAOHC representatives from INCE/USA are also members of ASA, a degree of collaboration is presumably in place. Another forum for collaboration is during future joint meetings of the ASA and INCE/USA. It would be desirable to have the ASA Technical Committees on Noise, Speech Communication, and Psychological and Physiological Acoustics sponsor joint sessions with any of several INCE/USA Technical Committees that are concerned with the effects of noise on mankind.

Summary

Since its founding, the ASA has experienced on three different occasions a migration of some of its membership to form new professional organizations. In the 1950s, the IEEE Signal Processing Society and the Audio Engineering Society started as spin-offs from the ASA. In 1971, INCE/USA was formed by a group of ASA members seeking professionalism in the new field of noise control engineering. Of these three new organizations, only INCE/USA has maintained a close working relationship

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with ASA. The two organizations work together in developing acoustics and noise standards, in international and national noise policy development, in the holding of joint meetings, and in the sharing of information in their publications. These and other areas of synergy exist because of the common goals of both organizations to increase and advance the knowledge of, attain professional excellence in, and meet the needs and concerns of the general public and governmental bodies in a multitude of issues related to acoustics and noise control. This cooperation will surely continue into the distant future.

Acknowledgements

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Common Goals

Create Synergy

Textbooks from INCE/USA

Available over the Internet from the Atlas Bookstore

Noise Control in Buildings – Cyril M. Harris

Noise Control in Buildings features contributions by leading authorities on noise control, and contains a very complete set of data on the properties of acoustical materials and on the sound insulation of walls and floor/ceiling constructions. This wealth of technical information provides an invaluable resource for the professional as well as the non-professional.

Noise and Vibration Control – Leo L. Beranek

This classic text on noise and vibration control is very widely used throughout the world. The book is divided into three parts: the basics of noise control (including measurement methods, acoustical materials, and sound propagation), application of these principles to reducing noise from sources, and criteria for noise control.

www.atlasbooks.com/mktplace/00726.htm

Workshop on Noise Policy Developments—Q&A

NOISE-CON 2005, Minneapolis, MN

Three sessions on noise policy developments were held during a one-day workshop at NOISE-CON 05 in Minneapolis. Edited versions of the presentations by panelists during the sessions appeared in the 2006 March issue of *NNI*, Vol. 14, No. 1, pp. 20-31. The purpose of the workshop was to present some ideas from the workshop, “Technology for a Quieter America,” sponsored by the National Academy of Engineering and held in Washington, DC, on 2005 September 13-15. The following panelists participated in this workshop:

Steve Roth	Larry Finegold
Les Blomberg	Mardi Hastings
Eric Wood	Nick Miller
Bennett Brooks	Dick Lyon
Bob Hellweg	Patricia Davies
Jerry Lauchle	Bob Bernhard

Following the presentations in all three sessions, there was a discussion period which allowed the attendees to question the panelists or offer comments. The questions (Q), answers (A), and comments (C) have been edited and are rearranged by subject.

Income, noise exposure, and health effects

Q: Larry Finegold, is there a relationship between family income and neighborhood noise exposure? If so, do you believe it is feasible to separate the adverse cardiovascular effects of (1) the stress of being lower income and (2) the stress of other pollutants, e.g. air pollution from (3) the stress of intrusive neighborhood noise?

A: There is a relationship between income and exposure. Quiet costs money. People don't live around airports if they can afford to live out in the suburbs where it's quiet. We've done

socio-economic studies on various demographic variables, mainly income and education level. They are probably the two that have been most highly correlated with noise exposure. The question of separating different effects such as cardiovascular or other effects from all the demographic factors, is an incredible challenge that has really never been done well. It's talked about in research planning literature. You must be able to separate the cardiovascular effects from its co-variants which are items like income and education level. Doing that in cross-sectional epidemiologic studies is almost impossible. The literature says that you need to do long-term, prospective epidemiologic studies, not short-term, cross-sectional studies. That's a research-design issue that significantly affects the cost of the study. The US, cooperating with Canada and the UK, researched how to do this; and the answer is that we would need probably 10 thousand subjects studied over ten years at the cost of at least \$5 million. I've not found anybody willing to write that check yet. However, the bottom line is that this type of research can be done and there are sufficiently experienced researchers and well-developed research techniques available to do the research if a nation wants an answer.

Noise ordinances

Q: Writing a local or state noise ordinance is not only a technical matter; it is also very definitely a legal matter. What efforts are being made to research and

integrate successful and unsuccessful legal precedents and case law into this deliberation process?

A: Les Blomberg: I think there's a pretty big disconnect. It's not just ordinances; it's police enforcement, especially in the really small communities. In Vermont where I live, there are more than 200 communities; there are three communities with noise ordinances that have an objective standard. Many of those communities don't even have a police officer (and the whole town contracts with the State Police for law enforcement). There are many challenges, and I do not see them being addressed very well by the proposed ANSI Standard or by others.

C: Larry Finegold: I agree. But we do have an ANSI Standards working group co-chaired by Bennett Brooks and me. Bennett is very knowledgeable about the legal issues which have to be considered. We are developing a flexible concept for local community

There is Progress in the Development of Noise Ordinances

noise ordinances which will hopefully be implemented as a US national standard to provide guidance to cities on how to develop ordinances and what tradeoffs need to be considered. Bennett and I are working to ensure that we are using a legally-defensible approach, with an emphasis on objective, quantitative types of metrics.

C: Steve Roth: I was involved in the development of a noise ordinance for a city, and there was a task force put together for that purpose. The task force consisted of the people who had issues with the

noise in the city as well as people who could possibly be responsible for noise emissions. The representatives of the mayor and city council were on the task force. The police, planning, and legal departments were also on the task force. After the development phase and once the numbers and the wording were put together, the legal people had to pass on it. How much research they put into the effects of the numbers in the ordinance and how it would hold up to legal scrutiny down the road, I'm not sure. But there was definitely an effort to make sure that, at least in this city, the legal folks were involved in the discussions on the development of the ordinance.

Warning labels

Q: Mardi Hastings, how difficult would it be to get the Surgeon General to make a statement attached to certain noisy products or processes that says "This noise may be hazardous to your hearing"?

A: I'd say very difficult. I think one way to make that happen would be to put labels on products. Another would be to invest in public education for awareness. I would hate to see it driven by a lawsuit, but that may happen. That may be the only route that is available to us.

Community noise management

Q: What would be the role of the state authorities as we encourage the cities to develop their own programs on community noise management? Would they be promoters?

Coordinators? Perhaps they wouldn't have any role at all.

A: Les Blomberg: I think this is a good question, but it's broader than that. It is "What is the federal role, what is the state role, what is the local role?" In Maryland, ordinance enforcement just went by the wayside. They had an

interesting approach which was that the state law provided the backstop. Communities were welcome to create more restrictive ordinances if they wanted, but there was a backstop just like in baseball, behind the catcher, to catch the things that got away. That often happens with noise, especially in the smaller communities. Also you have problems that are at the border line between communities as to which noise ordinance applies given that the emitters are in one community and the receivers are in another. It's an important issue. The federal government needs to provide an infrastructure for professionals. Then we need to consider the state's role and the community's role.

C: Steve Roth: It's amazing to me that we can go into a community to look at possible noise control, and the ordinance requirement will be 85 dB or 90 dB. It is not that unusual; they got it from OSHA requirements on occupational noise and put it into their regulation. The folks that did this had no idea it was inappropriate, and the residents are understandably upset. Building on what Les Blomberg said, there has to be some oversight arrangement. Not something formal, but at least informative. We must provide the folks who are developing ordinances with

the appropriate approaches. Larry Finegold's ANSI working group is a very important committee.

C: George Maling: The state of Maine has a very thorough state noise ordinance for industrial facilities. It takes about 26 pages in the Maine Environmental Protection Regulations. There was a paper at NOISE-CON 2001 by Tom Doyle, a lawyer in Portland. The title was "Twelve Years with the 'Most Complex Noise Regulation in the United States.'" As to the local situation I think it's quite difficult, as Les

Blomberg mentioned; and small towns have a very hard time. Some small towns in Maine are governed by a town meeting type of government. So if you have 300 towns, you are going to have 300 different noise ordinances. That makes it very complicated. Writing a noise ordinance for a small town is quite different from writing a noise ordinance for New York City. And that, I think, has to be reflected in whatever comes out of the ANSI working group.

Noise mapping

Q: Larry Finegold, regarding noise mapping for communities, should this be done? How fine a detail? What metrics?

A: Great question. The major driver for this concept is the European Commission Environmental Noise Directive requirement for doing noise mapping throughout Europe. This will provide a description of the noise exposure distributed throughout the major large cities. The negative side is that it's going to use up most of the EC noise budget for the next five to ten years. They are not going to be able to do much serious research on the effects of noise if most of the available funding is used for noise exposure mapping. The question is "What is the benefit of knowing the precise details of noise exposure?" I think in the United States we need a national-level estimate of noise exposure for environmental or community noise. This can't be done using existing noise models. It's not an easy task, but the method for doing so was documented in an EPA report by Lou Sutherland twenty years ago and has never been implemented. I think it's vital to support Bill Lang's national noise policy effort. We've got to be able to go to Congress and say "Here's the level of exposure in the United States." It would be nice to be also able to say "Here's the level of the impacts." But that's a whole different type of research. At a minimum you have to be able to say what the exposure

*As Maine goes,
so goes the Nation?*

is using some sort of simplified INM/TNM approach. A combined noise model needs to be put together; for example, by building on the multi-modal transportation noise model being considered for development by the Department of Transportation. It can be done, and is often discussed at international acoustics conferences. We need to have a reasonable noise exposure estimate and an understanding of the effects of this exposure in order to go to Congress to say “We need better noise policies in the United States.” We must describe the extent of the problem first.

C: Steve Roth: When speaking to cities or municipalities about noise ordinances, early in the process the question arises “What kind of noise levels do we have?” When we tell them about noise mapping, they say “That sounds like a great idea.” When they find out what the cost would be for appropriate noise mapping, the idea gets tabled very quickly. So even though noise mapping is a good idea, unless there’s some funding from other than the local municipality level, it probably won’t happen.

C: I want to thank the panel because they brought up the problem faced by small community. I live in Maine in one of those communities that do not have an ordinance. But I’m being approached by other communities that want a noise ordinance. I’m being asked to do noise mapping. One community read about the World Health Organization and the importance of noise mapping. I advised this community that the cost was going to be excessive, and that they may want to think about another alternative. We need to keep things simple for the public because they do not understand the technology as we do. They do understand that they do not have control of the noise that comes onto their property, and they want relief. I think the panel did an excellent job from all sides.

Getting the public’s attention

Q: Mardi Hastings, did media coverage of beached whales and other mammals force the underwater study? Does it take media coverage of horrific events to get attention and legislation?

A: No, it doesn’t take horrific media coverage to get their attention. In fact, on the underwater noise issue, particularly with marine mammals and endangered species, there was action with the Heard Island demonstration experiment back in the late ’80s or early ’90s, before any whales showed up on a beach. The other thing that spurred interest was the development of low-frequency (active) sonar. So those two events got the public’s attention. But what really was important was that legislation was in place—the Marine Mammal Protection Act and the Endangered Species Act; and the DoD, like every other government agency, has to abide by environmental law. The Marine Mammal Protection Act indicates that humans cannot add any kind of energy (to the environment) that will affect these animals, and sound is a form of energy. That’s the basis for the R&D that got started. It only got more attention when the stranding occurred in the Bahamas.

Labeling issues

Q: There are many references to the lack of support and involvement in noise control by some manufacturing segments of US industry. How can the acoustical engineering community become aware of and support those manufacturers who are concerned and willing to be involved?

A: Les Blomberg: The most important thing that willing manufacturers can do is to label their products. If some consumer product manufacturers label

their products with their own noise level labels, this would put pressure on others to say “Well, we’re quiet, too.” That would be a good way to start. I’m not surprised it hasn’t happened. We’ve done a lot of lawn mower testing. The loudest lawn mower we’ve ever tested was built by Husqvarna; the quietest chain saw we’ve ever tested was built

Noise Emission

Labeling by

Manufacturers Would

be a Big Benefit

by Husqvarna. It is not in their interest to focus too heavily on noise. Husqvarna was owned by Electrolux, which owns half of the lawn mower market. And they make washers and dryers and other consumer products, so the market consolidation has made it less likely that there will

be competition. I think it’s going to be companies closer to the fringe, the smaller companies, that will label their products.

C: Steve Roth: Companies that sell products to the European market are required by European directives to include noise level information with their products. Companies that wish to provide noise level information make it available to noise control consultants. There are many US standards for measurement of the noise of equipment. There are a number of ISO standards as well. It’s very easy for the manufacturers to get the appropriate standards applicable to their products. Often we deal with equipment that’s coming to our projects with very little noise level information, or we’re concerned about the accuracy of the noise level information received. If a product is sold on the European market, the manufacturers will have tested their equipment. If we had more pressure to use test standards to measure noise levels of equipment here in the US, we would have more accurate noise level data. Equipment noise level information for the manufacturer is available in literature, on websites,

and through appropriate application engineers. Those who want that data should be able to find it.

C: Larry Finegold: There was an excellent article by István Vér published in the NOISE-CON 2001 Proceedings on a concept for incentive programs with industry working with government in a cooperative fashion. The programs, techniques, and concepts described in that paper are really what will solve this lack of coordination. In the short term, my recommendation would be to get involved in the national standards development process. We have working groups on product labeling, for example. Generally speaking it involves both industry and the government actively participating as partners in the overall process.

C: Paul Schomer: I'm disappointed that we've not made faster progress in our labeling standard. I found another labeling standard available through ISO, but it uses decibels and is designed for the knowledgeable user. I personally feel we could do a little better for consumer products.

Q: Les Blomberg, regarding noise labeling, will it mean anything without actually having a policy that says "x" number of decibels are too much?

C: George Maling: There was quite a bit of discussion about labeling at the workshop on noise policy that was held at INTER-NOISE 2002. One session included many manufacturers, and they illustrated some of the difficulties in producing a label. One of the problems you encounter when you start to talk about labeling is the sound quality issue. Manufacturers will say "The public shouldn't hear about how much noise it makes, but how good it sounds." So this is a problem for

many manufacturers; it's very hard to get a metric that will satisfy everybody. In the EPA labeling program in the 1970s they had the same problem. The EPA wanted to label products. In the end EPA said, "We need to develop a different method of labeling for each product." So there wasn't any universal scheme for labeling, and that more or less ended the EPA attempts at labeling.

C: Bill Lang: In contrast to that, the white goods industry in Europe now makes available A-weighted levels on all of its products. Not necessarily on the label, but in the brochures that accompany the sales of these products. So the white goods industry is not using the sound quality shield to keep them from labeling. They're going ahead with what may be an imperfect metric, but at least it's a metric.

C: Steve Roth: I have a comment from an industrial perspective. It's not possible to say on a label that a piece of equipment is acceptable or not acceptable from a noise level standpoint. Good examples are condensing units installed on the roof of a building. They may be acceptable in 90 percent of the locations, and in 10 percent are not. Knowing the noise levels of these units ahead of time can help in making the decision as to what the noise level will be in the community. But to say a piece of equipment is acceptable or not acceptable from a noise standpoint should be on an incident-by-incident basis. That's even true with an OSHA requirement. A piece of equipment with a rating of 100 dBs in an unoccupied room will be perfectly acceptable. It's not a noise-induced hearing loss issue.

Q: Will labeling be useful without a group or organization to verify that the labels are correct?

A: Les Blomberg: At the Noise Pollution Clearinghouse we are trying to do three things. Has anybody seen Wikipedia, a free encyclopedia written and edited by the public? It has advantages and disadvantages. It's cheap, it's free, and it can be incredibly wrong. NPC wants to try to do something similar for noise (while avoiding the problems). We're trying to set up a program to test products that could be reported much like Wikipedia. We seek donations from industry, and then we test their products. We try to find venues that are easy to test in, like department stores. Second, we are also going to request test data from industry. The third thing we are going to do is to encourage public involvement. Obviously we don't want the public running around with low-cost meters, so our idea is to solicit INCE, the National Council of Acoustical Consultants, and other qualified people, to submit the results of noise level testing that they've done, and try to make up for the lack of quality with quantity. This is not a long-term solution; but it might make industries take notice, because they'd rather have more control over it than I'm going to give them.

C: Larry Finegold: That's short-term. For a long-term solution you could move forward on the development of a national noise policy for labeling US products. Most of the discussion has been on the major agencies like the EPA, the FAA, and the Department of Commerce; and that is the correct level of focus. However, I would be very interested in what is going to be the role of NIST. I think we could really see a significant role, particularly on this topic, for NIST.

C: Paul Schomer: We would like labels for noise similar to those now on refrigerators and air conditioners for energy. For any consumer product the label gives the range of sound levels for that product and the level of that particular model. It should

How Do We Know That Noise Labels Are Accurate?

be meaningful; I still think decibels aren't the most meaningful thing for the public. But a meaningful measurement—here's the quietest, here's the loudest, here's what you are getting for your dollar—would have a place in the marketplace. It's a self-policing thing, and you don't have to set criteria levels, the public can just buy a quieter one if they want to. That's my vision for how labeling would work for consumer products. Obviously for industrial use, for the factory floor, you need at least the A-weighted sound power.

C: Mardi Hastings: That type of labeling is working for a simple product—exhaust fans for bathrooms. If you want to buy an exhaust fan, it's easy to pick the quietest one. People are doing that; it works.

Noise budgeting

Q: The National Park Service "Natural Quiet" policy has not been mentioned, but it is an example in the US of establishing a method of noise budgeting for environmental quality. Would such an approach be practical in communities?

A: Larry Finegold: Many people from the aircraft noise arena have spent time debating the value of noise budgets. They are extremely controversial, and there are pros and cons to this approach. But noise budgeting is available. I believe that, if implemented in a fair and objective manner, it could be a useful tool. Generally the large noise-producing agencies in the United States such as the Department of Defense, the US Air Force, and the FAA don't like the concept; but I'd like to see it surface for serious discussion and debate.

C: Paul Schomer: I think, in the aircraft area and probably in other areas,

noise budgeting could be done. But a variation on a noise budget means that the noisier your airplane, the more you pay in landing fees. This is being done in several European airports right now. Variable landing fees have just been initiated at the Tokyo airport, by charging the noisier planes more and the quieter planes less. Tokyo is already one of the most expensive airports in the world. That's a form of noise budgeting that, at least for airports, makes a greater degree of sense because realistically the noisier aircraft should be paying more. Similarly we could say that for new highway vehicles and new trains, part of the tax could be the weight of the vehicle, part of the tax might be the noise level of the vehicle.

Metrics

Q: Nick Miller, should new metrics be developed to correlate better with specific disturbances, for example, speaking, sleeping, and annoyance?

A: That's a very complex issue. I've come to realize that what we've been talking about all these years is decibels in one form or another, and what decision makers in the community want to know is "What's it going to sound like?" How do you get between those two poles? I think that it may be a combination of several things. First, use guideline standards for the measurements; but

Can We Find Quantitative Metrics that will Improve the Quality of Life?

realize that they're only part of the story. This should give people some a sense of the sound. I listened to a paper yesterday on the jury rating of reverse thrust noise. There was one sound rated most annoying which happened to be the one where the equipment recorded the loudest level.

And the second most annoying could not be identified using sound levels. I asked what the sound was like, and the jury said it had a kind of a buzzing sound to it. How do you develop a metric for

that? The fundamental question is can we find quantitative metrics to make the quality of life better?

Q: Is there a risk that the metrics issue will push us into a new dB battle delaying any progress to a quieter America?

A: Bennett Brooks: There's always a risk, whenever you open anything up for discussion, that the discussion will delay matters. But because we already have a set of dB metrics, the question now is "Can they be improved in some way?" Obviously, we'll work with what we have available to us, but perhaps we can find a better way to accomplish the goals that we have of a quieter America by refining those tools. So I would suggest that we keep working with what we have and try to improve our metrics as we go along.

Q: Because of the variety of test methods to measure noise levels (A-weighted, 1/3-octave bands, etc.), which noise measurement method should manufacturers use when testing and publishing data, specifically regarding construction products used to control noise in indoor environments?

A: Bennett Brooks: As a consulting engineer in private practice I say: "Give me everything." I would like to have data in 1/3-octave bands so that I can apply any absorption or transmission loss criteria that I need to do a design from a practical standpoint. If I have less information than that, of course I have to try to use the limited information I have to get the best answer. If it's for indoor environments, there are transmission loss tests and absorption tests for materials—typical construction materials in buildings. These tests can be done in any one of a number of accredited laboratories, and they're quite inexpensive. You can have a wall assembly tested for approximately \$950 plus the carpenter's time and the materials. If you want to hire a consultant or lawyer to defend you on

an issue involving such a wall assembly, it's going to cost you much more. For industrial machinery, like fans or chillers, the information you get from the manufacturers is often inadequate. I would recommend to the manufacturers that they provide 1/3-octave band sound power levels in their literature. This information would be very useful if you're trying to plan a complex site to meet community noise criteria.

Sound insulation programs and highway noise

Q: Eric Wood, why shouldn't retrofit and insulation programs be applied to homes near highways? Is it because of the received noise levels or because of the nature of the road noise?

A: The bias against expanding the residential sound insulation program to homes along highways is complex. There is considerable pressure to reduce the cost of sound insulation programs around airports. The money that's been spent is approaching two billion dollars. Some say "That money, instead of insulating people's homes, should be spent on research to make quieter aircraft." From a personal point of view, I do a fair amount of traveling so I'm often on the highway. I see nice looking homes within a few hundred feet of interstate highways. When I drive by I notice that there are curtains at the windows and swing sets in the yard. So I assume somebody is living in these homes. There are no statistics showing that people living in these homes are sicker or go to the hospital more often than anybody else. I question whether taxpayers' money should be spent to improve the windows of these houses. The owners bought the house knowing the highway was there.

I would like to see more funding for quiet tire programs. I started working with jet engines at Pratt and Whitney over 30 years ago when the engines were pretty noisy, and we've done a remarkable job of making them quieter.

The technology for the development of a lower-noise jet engine is more difficult than the technology for a quiet tire. And we regularly turn over tires; every three or four years we get an entirely new generation of tires on the road. Quiet tires would also reduce the noise outside of people's homes, not just inside people's home. This is why residential sound insulation programs for homes near highways may not be as good an idea as programs for homes near airports.

Q: Eric Wood, if a person can afford it in this country, he may try to buy himself out of a noise problem. The typical ordinances and building codes here are 10 to 20 dB more lenient than they are in Europe. So is there a market here for comparable quiet homes as there is in Europe?

A: Eric Wood: Europeans have a different concept of the environment and different expectations than many people have in the United States. That's a generalization, but there is some truth to it. Here wealthy people may buy their way into a quieter environment, but I've noted that some of the most expensive real estate in the United States is ocean-front real estate where it's pretty noisy with waves breaking on the shore. Is there a market for quieter homes? Yes, people are willing to pay a little extra for quieter homes, and they are also willing to pay a little extra for a home that is energy efficient.

C: Bennett Brooks: I'd also like to respond to that question because I work on a variety of different homes—some expensive, some otherwise. But the answer to the question, "Can someone buy their way into a quieter home?," is certainly yes. But there may be a disconnect between what someone thinks they're buying and what they are getting. That is a problem in the home market—there is no good definition for the average person of how to get a quieter home. We, in this room, certainly know what a quieter home means. But I can give many examples of projects,

situations that I've worked on, where people buy "luxury" homes; and the first thing they notice is that they have a noise problem. Most of these situations are multi-family dwellings. People will spend a lot of money on what has been marketed as a luxury condominium. But if it's stick-built, any kind of lightweight construction, and not masonry, they're going to have a noise problem unless the dwelling has been very carefully designed. In many cases where there has been no consideration of potential noise problems, the complaints come after the fact when it's too late to solve the problem. Is a rating system needed? We have codes that provide minimum IICs and STCs and so forth, but the general public does not know about them. So the answer is "Yes, you can buy quiet if you know what to look for."

C: Tor Kihlman: In Sweden our sound-insulation minimum requirements are roughly equivalent to sound transmission class 52 or 53 in central Stockholm. However, condominiums meeting that standard will not sell. They have to be better. So we have a higher sound transmission class—plus 4 and plus 8 dB better. The contractors must meet a performance at least plus 4 dB above the minimum requirements to avoid complaints from their customers.

C: Bennett Brooks: That's an excellent point; it's a question of awareness. If people know what the rating is of the home that they're buying, then they can make an informed decision.

Q: Tor Kihlman, what is the enforcement procedure if the flat/apartment does not live up to the specification?

A: That is a very difficult question, but in some cities—Stockholm for example—there has been a strong follow-up program for many years that require the new dwellings fulfill the minimum requirements. And those who sell homes know that if they do not build to a higher

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specification, they will get complaints; and they don't want to have complaints.

Q: Tor Kihlman, do you have any sense of why there is so much demand? What is it about Sweden that makes builders more conscientious? I have a feeling that in this country if somebody bought a condo and complained, the builder may be long gone. Then the condominium association says "What are we going to do? Should we spend money to hire somebody or what?" That's a conjecture, but it is a question that Eric Wood was struggling with. Is there a difference in sensitivity in European communities versus the US?

A: There are building standards in many European countries including Denmark, Norway, Sweden, and England. These countries have met the minimum requirements since 1945 (sound transmission class 52-53).

Field reduction indexes are another evaluation method. And so in Sweden we introduced this voluntary standard for classifications of homes based on measurements. The measurements were taken after the buildings were completed. I wonder why there are no similar developments here. There are people in the US who value their quality of life. Why is it that there are no dwellings on the market meeting sound transmission class 55 or 60?

Cost-benefit analysis

Q: Is sound insulation a good way to go? What is the potential to have quieter aircraft rather than sound insulation of homes?

A: Nick Miller: Andy Harris made a comment in his session about the FAR Part 36 regulations in this country—the regulations that set the standards for the design of new aircraft for low noise.

He said that these are regulations that follow; they don't lead. When the aircraft get quiet enough and there's enough political pressure, new guidelines are set according to what can be accomplished now. The manufacturers build quieter aircraft. When there are enough of these quieter aircraft, a new standard is set to make sure that new production is built to that standard. Now in Chapter 4, I think there was one aircraft out of the entire fleet that didn't meet the Chapter 4 requirement. So it's not a forcing function; it's a following function.

Q: Will we ever see a cost-benefit analysis (CBA) method to justify the implementation of engineering noise controls?

A: George Maling: A very good question! There is a lot of work going on in CBA at MIT, and the Federal Aviation Administration has a new program for CBA.

C: Patricia Davies: I know next to nothing about this but have sat through some modeling of cost-benefit analysis, and it interests me. At the moment this is based on housing prices. I am concerned with the impact on health, but the models that are being used now are, based on what people are willing to pay for houses.

C: Bob Bernhard: I'm dealing with the highway industry and that industry would benefit greatly from CBA. To get to a crude estimate of cost-benefit where you are not accounting for all the benefits, but a limited set of them, is not that difficult. You can easily show, for example, the benefits of quiet pavement. We don't have to monetize all the benefits in order to show a cost-benefit.

C: George Maling: That was a point Ulf Sandberg made at the 2001 INTER-NOISE meeting. He felt that you could make a cost-benefit analysis in the quiet pavement area. I exchanged e-mails with Katherine Harback from Mitre who spoke at the NAE Washington workshop on CBA in the aircraft industry. I sent her 8 or 10 papers that I had on the subject, and she sent me back a few references to papers that she had. The papers appeared in different journals, suggesting that there is a group interested in economics and a group interested in noise control. They're reading different journals and not talking to each other. The aviation industry will likely move ahead with a fairly thorough review of what's already available. This may help the pavement people.

C: Bob Hellweg: The first question asked about CBA was addressed to environmental noise. But in the area of product noise, although not regulated, CBA is being done today by the manufacturers of the products. When the customers demand products that are quieter, the

manufacturer will make sure that those products meet their demands. Much of this noise control effort is stimulated by environmental criteria in Europe.

Q: Bob Bernhard or Jerry Lauchle, as demand exceeds supply; do we see costs (salaries) increasing?

C: Bob Bernhard: From my evidence, yes. We have seen situations where our graduate MS degree people have substantially higher salaries than they would have had with degrees in other areas. One of the attendees at the workshop said that his company raised the opening position level by one grade if the new hire was a noise control engineer.

*Noise Should be Treated
as a "Sound Resource"
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Industrial hygiene education

Q: Bob Bernhard or Jerry Lauchle, some consider occupational noise and noise control to be a subset of industrial hygiene. How does this affect education, certification, and practice or where does the industrial hygienist fit into noise control activities?

A: Bob Bernhard: In the past I have had some interaction with Purdue's School of Health Sciences, because the professors bring their students over to visit us (in the Herrick Laboratories) once in a while to show them, for example, what an anechoic chamber looks like. Since I've been working in the FAA Center of Excellence, I'm in a closer relationship with the School of Health Sciences. Their students are not engineers, so they don't represent engineers. Their school does not teach very much about noise; the noise module is about two weeks of an industrial hygiene class. Their students learn about dosimeters and how to use them, etc. Even at Purdue we do not have an industrial hygiene program that addresses the noise issue.

C: Steve Roth: Industrial hygienists will at times involve themselves in noise control; they will sometimes try

to implement basic noise controls. But normally what they do is pass the problem on to an engineering organization at the plant—facilities engineering, for example—hoping that they have the knowledge to resolve the problem. Very often they don't. Then the next step, if they really want to do some serious noise control, is to hire a noise control consultant. Much the work I do in plants comes about when industrial hygienists realize that they cannot resolve the issue themselves. It's unusual for the IH people to implement noise controls.

C: Bennett Brooks: Taking Steve's comment as advice to the universities, we have to, at a minimum, teach the industrial hygienists to contact noise control engineers when they have a problem.

Soundscapes

Q: At INTER-NOISE 2005 Lex Brown from Australia said that we have to see noise differently, not as a pollutant but more as "a sound resource." Could our view of the problem and approach be impeding the success of noise control promotion?

C: Bill Lang: As I recall, Lex Brown said that we must take a positive attitude as we approach noise control. He had an example where an ambient background in a busy city square in Europe provided a pleasant soundscape. The soundscape must be taken into account; it's not just a question of treating a particular problem by reducing the level by a certain number of decibels.

C: Jerry Lauchle: Penn State is starting an initiative in the soundscape area. A faculty member in our acoustics program is working with landscape architecture to incorporate certain ideas of soundscape into landscape architecture. For example, making sure there is adequate vegetation, food, and water to attract birds. People like to listen to birds sing.

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C: Patricia Davies: Dick Lyon should talk about this because his approach to product noise has to do with designing pleasant sounds. He doesn't call it product noise because noise is negative. It's all about designing product sound. I'm more pessimistic than Dick because I think that we do have a lot of noise problems, but sound can be positive.

C: Dick Lyon: The sound of a product is one of its characteristics. For example, when the instant camera came out, it was competing with the single-lens reflex camera. The single-lens reflex camera has a very characteristic sound, and the instant camera has a very different sound. So the job of the noise control engineer is to make the instant camera quieter. We can agree with that, but you certainly can't make it sound like a single-lens reflex because the mechanisms are different. Therefore, the approach you can take, particularly as a product manufacturer, is that it

sounds different because it is different; there is a different characteristic to the sound of the product which reveals what it is. We do that with people all the time; we recognize the difference between Steve's voice and Tor's voice. We know them by that sound; it's a characteristic of that individual. The most recent example is the introduction of the hybrid automobile. You cannot make a hybrid automobile sound like a Mercedes diesel sedan or a spark-ignition engine; it's a different acoustical experience. So it becomes part of the identity of the product. Within that identity you can try to make it sound better, but there is no point in trying to make them sound alike.

Demand for noise control professionals

Q: Are there statistics on research funding from (1) government, (2) academia, and/or (3) industry to show the trend of noise control research? This would

allow us to obtain information to correlate supply of and demand for noise control professionals.

A: Bob Bernhard: There probably are statistics like that. I was not able to gather them in the time that I had. We could go to agencies similar to those on the list at the NAE workshop and find those that they identify as noise control engineering research funding. I'm hoping that one of the things we do if we make a consensus study is to assemble this information.

C: Tor Kihlman: Bob Bernhard estimated that the present supply in the US was a total of 30 M.S. and Ph.D. students per year. This is approximately the present output in Sweden, but we export some of them. Right now we have three North American students in our master's program in noise control engineering; they'll probably return to the US. It would be interesting

to compare the actual output and demand in Europe to that in the US. The education situation in Sweden happens to be better than in many other countries in Europe, but we have the same noise problems as other European countries. In Europe you have research groups and education groups in noise control. They are an endangered species everywhere in academia, but we are comparatively lucky in Sweden right now. It would be interesting to make a US-Europe comparison because I'm not at all happy with the progress of the noise issue in Europe.

C: I did some quick math about Bob Bernhard's comments on required supply. If there are 200 openings for noise control engineers in industry each year and you have that number of graduate students by what I'm imagining is \$100,000 to \$150,000 of support needed for one graduate student, we're talking about \$20 to \$40 million dollars of research support a year in the universities. I think that's a little more than what we actually have.

George Maling thanked all the panelists and attendees for their participation, and closed the Workshop.

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INCE/USA Conference Proceedings on CD-ROM Available over the Internet from the Atlas Bookstore

The NOISE-CON 05 Proceedings

This searchable CD-ROM contains 198 papers presented at the joint NOISE-CON 05/ASA 150th meeting as well as 749 papers from the NOISE-CON conferences held in 1996, 1997, 1998, 2000, 2001, 2003, and 2004 as well as the papers from the Sound Quality Symposia held in 1998 and 2002. All papers are PDF files.

Several papers are taken from sessions organized by the Noise, Architectural Acoustics and Structural Acoustics Technical committees for the 150th ASA meeting. The three plenary lectures related to noise and its impact on the environment are included. Also included are papers in one or more organized sessions in the areas of aircraft noise, tire/pavement noise, and hospital noise. Other papers cover noise materials, mufflers and silencers, statistical energy analysis, acoustical facilities, product noise emissions, sound quality and perception, sound insulation of buildings, community noise, and environmental noise criteria. A collection of papers on United States and international noise policy is also included on the CD-ROM.

These papers are a valuable resource of information on noise control engineering that will be of interest to researchers in the academic community, government workers, engineers, acoustical consultants, and students.

The ACTIVE 04 Proceedings

This searchable CD-ROM contains 595 full length papers on active control of noise. The latest in the ACTIVE series of international symposia on active control of sound and vibration was organized by the NASA Langley Research Center, and was held in Williamsburg, Virginia, USA on 2004 September 20-22. One hundred and one papers from this meeting are on the CD-ROM. The remaining papers are from the ACTIVE Symposia held in 2002, 1999, 1997, and 1995; in addition, 33 papers from Book 2 on active control presented at NOISE-CON 97 have been included. The papers cover all areas of active control of sound and vibration.

www.atlasbooks.com/mktplace/00726.htm

Mexico

13th Mexican International Congress on Acoustics

The 13th Mexican International Congress on Acoustics will be held in Oaxaca, Oaxaca, Mexico on 2006 October 11-13. The Congress will cover all areas of acoustics, including noise, architectural acoustics, and standards. An exhibition of equipment will also be held. Sponsors will have a right to a 2x3 metre stand in the exhibition area. The cost for sponsorship is 800 USD. There will also be a cultural program for accompanying persons. Further information on the Congress may be obtained from Sergio Beristain, sberista@hotmail.com.

USA

National Academy of Engineering Initiates "Technology for a Quieter America" Project

The National Academy of Engineering (NAE), in its role as an advisor to the nation on matters of engineering and technology policy, has initiated an investigation of the economic and quality-of-life benefits that might be realized through a focused effort to control the negative effects of noise in the workplace, in communities, and in the home. The study will examine the existing and potential solutions along with the policies that will help to develop and deploy solutions to these challenging problems.

At the conclusion of this project, a report representing the consensus of the study committee will be issued. The consensus report will:

- Summarize the current state of the practice in noise control engineering,
- Recommend how existing knowledge can address current challenges,
- Present a research and education agenda that promotes the generation of new knowledge in the fields that can provide the greatest benefit to society (employees, corporations and manufacturers, and members of communities), and
- Recommend policies that agencies can develop in order to further improve the American soundscape.

Following a one-year preliminary investigation of the subjects of greatest interest related to noise and noise control technology - including a workshop attended by over 70 representatives from industry, academe, professional societies, private consultants, and government agencies - a proposal for this study was submitted to the leadership of the NAE. In January 2006, the proposal was approved and a committee of experts was appointed to collect, synthesize, and analyze information pertaining to three major initiatives listed below:

1. Applications of Current Technology
 - a. Cost-benefit analysis of noise control technologies
 - b. Impact of noise on competitiveness of US products
 - c. Industry demand and education system supply of noise control specialists
2. Research and Development Initiatives for Noise Control Technology
 - a. New technologies for a quieter America
 - b. Engineering controls and common descriptors for hazardous noise
 - c. Improved metrics for community noise
3. Intra-governmental and Public Relations Programs
 - a. Public information on the benefits of low-noise products and the adverse effects of excessive noise
 - b. Coordination of noise control activities of federal and state agencies
 - c. Assistance to state and local community noise control programs

The study committee held its first meeting in Washington on May 1-2, and reviewed and modified the methods for gathering and assessing information related to the topics presented above. Currently, subcommittees are being appointed to conduct background research in each of the identified nine subject areas.

Members of the study committee are:

- George C. Maling, Jr., Managing Director Emeritus, Institute of Noise Control Engineering of the U.S.A. (Chair)

*NAE Technology
for a Quieter
America*

continued on page 72

*New Standard
Developed by
ASA: Rating
of Noise with
Respect to Speech
Interference*

- Robert J. Bernhard, Director, Institute for Safe, Quiet, and Durable Highways, Purdue University
- Robert Bruce, Collaboration in Science and Technology, Inc.
- Beth A. Cooper, Manager, Acoustical Testing Laboratory, NASA Glenn Research Center
- Patricia Davies, Director, Ray W. Herrick Laboratories, Purdue University
- Carl Hanson, Vice President, Harris Miller Miller & Hanson, Inc.
- Robert Hellweg, Acoustics Engineering, Hewlett Packard Company
- Gerald Lauchle, Professor, Graduate Program in Acoustics, Pennsylvania State University
- Richard Lyon, Chairman, RH Lyon Corp.
- Ian Waitz, Deputy Head, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology

The activities of the study committee and its subcommittees will be coordinated by NAE staff, and a series of workshops, panels, and committee meetings will be used to collect and interpret the knowledge and informed opinions of stakeholders in the areas addressed in this study.

It is expected that a final report will be issued in late 2008.

The Acoustical Society of America's June Event Marked 50th Anniversary of Speech Privacy

The 151st meeting of the Acoustical Society of America (ASA) was held on 5-9 June at the Rhode Island Convention Center in Providence, RI. The Society hosted a day-long celebration of the 50th anniversary of speech privacy. The celebration was held on Wednesday, June 7, with presentations on various topics related to speech privacy.

According to Greg Tocci and David Sykes, the co-chairs of American National Standards Institute (ANSI) working group S12/WG44—Speech Privacy and organizers of this celebration, the day's events included:

Fourteen invited and contributed papers by pioneers, leaders, researchers and practitioners of speech privacy including Leo Beranek, 2003

President's National Medal of Science recipient, Bill Cavanaugh, Parker Hirtle, Rein Pirn, John Bradley, Ilene Busch-Vishniac, James West, Charles Salter and others;

The fourth international meeting of the ASA & Institute of Noise Control Engineering Joint Subcommittee on Speech Privacy in Healthcare Facilities, which recently gained recognition as ANSI S12-WG44. At this meeting, the subcommittee's ongoing collaboration with the American Institute of Architects and American Hospital Association on the drafting of an "Interim Guideline on Speech Privacy and Acoustics" was discussed. The AIA's 60-year-old manual "Guidelines for the Design and Construction of Healthcare Facilities" is the reference standard or code accepted by several U.S. federal agencies, 42 states and numerous municipalities.

The 1995 Health Insurance Portability and Accountability Act (HIPAA) is one of two recent bipartisan national privacy protection laws that seek to harmonize U.S. privacy protections with similar statutes in Europe, Japan, Canada, Australia and elsewhere around the globe. HIPAA's companion U.S. law is GLBA (Gramm, Leach, Bliley Act) (1999), which covers financial services institutions and is named for its sponsors Senators Gramm, Leach and Bliley.

Complete details about the ASA event can be found at www.speechprivacy.org.

Acoustical Society of America Issues Standard for Rating of Speech Interference

American National Standard S12.65-2006, Rating Noise with Respect to Speech Interference, has been approved and is available from the Standards Secretariat of the Acoustical Society of America.

This standard defines a simple numerical method for rating the expected speech-interfering aspects of noise using acoustical measurements of the noise. The relevant acoustical characteristics of the noise are summarized in terms of a single-valued index known as the speech interference level. The application of the measure is intended

for natural speech. This standard is a revision (and redesignation) of ANSI S3.14-1977 (R1997). ANSI S12.65-2006 is available for 90 USD per copy.

To purchase an electronic copy of this ANSI Standard or other National or International Standards on Acoustics, Mechanical Vibration and Shock, Bioacoustics, or Noise, please visit the Acoustical Society of America's Home Page at asa.aip.org. Hard copies of standards can be purchased by contacting the Acoustical Society of America, Standards Secretariat, 35 Pinelawn Road, Suite 114E, Melville, NY 11747-3177. Telephone +1 631 390 0215; Fax: +1 631 390 0217.

ASTM Committee E33 on Environmental Acoustics Elects R. Kring Herbert as New Chairman

Committee E33 on Environmental Acoustics of the American Society for Testing and Materials (ASTM) recently elected R. Kring Herbert, a principal of Ostergaard Acoustical Associates in West Orange, N.J., as its new chairman. Herbert joined ASTM International in 1977 and has chaired Subcommittee E33.02 on the acoustics of Open Plan Spaces since its inception in the 1980s. He continues to be active on a number of E33 groups.

Robert Hallman of Armstrong will replace Herbert as chairman of Subcommittee E33.02. Steven Brown will become the chair of the Subcommittee E33.04 on Application of Acoustical Materials and Systems.

Committee E33 is responsible for a wide range of standards used to evaluate the acoustical performance of buildings and building components, including laboratory and field tests of sound absorption, sound transmission loss, and impact noise resistance. For example, the Sound Transmission Class (STC) of a wall construction is tested with ASTM Standard E90. The sound absorption of acoustical tile is measured with ASTM Standard C423 and results in NRC or Sound Absorption Average (SAA) values.

Outside ASTM International, Herbert is an associate of the American Institute of Architects and a member of the Newark and Suburban Chapter of AIA New Jersey. He is also a member,

board certified, of the Institute of Noise Control Engineering of the USA, and a fellow of the Acoustical Society of America.

NASA Glenn Produces Training Resource

The NASA Glenn Research Center Acoustical Testing Laboratory (ATL) has produced a new training resource for use by hearing conservationists and engineers.

"Animated Auditory Demonstrations II: Challenges in Speech Communication and Music Listening" is a collection of animated video demonstrations that illustrate the effects of acoustical parameters and hearing loss on speech and music. This new resource is a video version of key demonstrations from the audio collection, "Auditory Demonstrations II: Challenges in Speech Communication and Music Listening." Each of these new animated videos provides entertaining contextual background imagery as well as a time-dependent display of key parameters such as hearing thresholds associated with cumulative noise exposure over time, background noise NC levels, wall partition STC ratings, reverberation time sequences, and labeled NRR values of hearing protectors.

Single copies of this new resource can be requested at www.grc.nasa.gov/WWW/AcousticalTest/announcement.html.

Periodic news and updates on topics in hearing conservation, noise control, and acoustical testing may be obtained by subscribing to the ATL's mailing list at www.grc.nasa.gov/WWW/AcousticalTest/subscribe.html.

Feedback on this and other Acoustical Testing Laboratory resources and services may be given by using the form at www.grc.nasa.gov/WWW/AcousticalTest/feedback.html. 

*Kring Herbert is
the New ASTM
E33 Chair*

INCE/USA Goes Online with Conference Papers

International INCE International INCE Elects Officers and New Director

At its meeting in Rio de Janeiro on 2005 August 6, the International INCE Board of Directors elected two new officers and one new director. The appointments were effective on 2006 January 01.

Jean-Pierre Clairbois of A-Tech Acoustic Technologies/Belgium was elected Treasurer. He replaces Gerrit Vermeir of the Katholieke Universiteit Leuven who served as Treasurer for many years. Also, Marion Burgess of the University of NSW at the Australian Defence Force Academy was elected Vice President-Asia Pacific Area. She replaces Masaru Koyasu who served in that position for many years. Samir Gerges of the Federal University of Santa Catarina, Brazil, was elected a Director of International INCE by virtue of his presidency of the INTER-NOISE 05 Congress held in August, 2005, in Rio de Janeiro. Joseph M. Cuschieri, President of the INTER-NOISE 99 congress leaves the Board after a six-year term.

Other officers and directors remain the same and are listed on Page 2 of this issue of *Noise/News International*.

INCE/USA INCE/USA Announces New Source of Conference Papers

There is a new online source for the papers from previous INTER-NOISE, NOISE-CON, AND ACTIVE, and SQS meetings from 1995 to 2002. The site was established by the American Institute of Physics under an agreement with INCE/USA. Courtney B. Burroughs, currently editor-in-chief of *Noise Control Engineering Journal* was responsible for preparation of files for each paper that make the site searchable.

To access papers from these conference go to <http://scitation.aip.org/journals/doc/INCEOL-home/>

This site contains a wide range of papers from "how to" descriptions of noise control to detailed scientific analyses of noise issues. Some of the most important papers in noise control published between 1995 and 2002 can be found here. There are nearly 2000 papers available at this site from the following conferences:

- INTER-NOISE – 1999 and 2002

- NOISE-CON – 1996, 1997, 1998, 2000, and 2001
- ACTIVE – 1999
- Sound Quality Symposium (SQS) – 1998 and 2002

A search tool is provided to allow users to find the papers of interest by title, subject or author. Multiple search criteria can be used to insure you find the papers most relevant to you. Once you find a paper of interest you can immediately download a copy in Portable Document Format (PDF). It is fast, convenient, and reasonably priced. More papers will be added as they are prepared and indexed to be placed on this site.

INCE/USA Elects New Officers and Directors

At its meeting on 2006 January 29, the Board of Directors of the Institute of Noise Control Engineering of the USA. held its Annual Meeting and elected new officers and directors.

Paul Donovan of Illingsworth-Rodkin was elected President of the Institute. He had previously served as President-elect and Executive Vice President. It is expected that he will serve for a two-year term. No president-elect was designated; Gerald C. Lauchle, who served as president for a one-year term agreed to fill the position of Executive Vice President for 2006.

Amanda Kachur of Acoustics by Design, Inc., was elected Vice President-Public Relations. She replaces John C. Freytag who served for a three-year term ending in 2005.

James K. Thompson of Link Engineering continues as Vice President for Publications. Richard A. Kolano of Kolano and Saha Engineers, Inc., continues to serve as Vice President-Board Certification. Gregory C. Tocci of Cavanaugh Tocci Associates, Inc., will complete his three-year term as Vice President-Membership. Michael J. White of the U. S. Army Construction Engineering Research Laboratory will complete his three-year term as Secretary in 2006. Stephen E. Marshall will continue as Treasurer.

Courtney Burroughs will continue as *NCEJ* Editor-in-Chief, Joseph M. Cuschieri will continue as Interim Executive Director, and George C. Maling will continue as Managing Editor of *NNI*. Richard J. Peppin of Scantek, Inc., will continue as *NNI*

continued on page 77

Australia/New Zealand Australia/New Zealand Conference November 2006

There is only a narrow body of water between Australia and New Zealand and the societies of each country have cooperated on many levels, including holding satellite conferences when there is an international conference in the other country. In 2006 the links strengthen as the Acoustical Societies have their first joint conference on 20 to 22 November, 2006. The theme is "Noise of Progress," and a strong technical program is evolving; see www.nzas.auckland.ac.nz. The conference will be held at the spectacular Clearwater Resort in Christchurch, New Zealand. The timing is ideal for those who are able to detour via New Zealand on the way to the American Acoustical Society meeting followed by INTER-NOISE 06 in November - December in Hawaii.

Government Support for Lobby Group

The Federation of Australian Scientific and Technical Societies is a lobby organization to promote science and technology in Australia. It has recently been awarded a direct government grant to assist in its activities. The grant is to provide support for "the Federation's role in policy formulation, and raising public awareness in and promoting the importance of science and technology in addressing important national issues." This creates ongoing pressures for Australia to ramp up our national innovative capacity and is in part a response to the skills shortage. The demand for staff in the consulting areas means that Australian Acoustical Society is well motivated to participate in these activities which will raise the profile of science and technology careers. ■

President's Column *continued from page 51*

category of being hardy perennials. For *NCEJ*, the concern is increasing the number of quality papers to match the vision of this Journal. Our new *NCEJ* Editor-in-Chief, Courtney Burroughs is addressing this by particularly reaching out to the international community as well as renewed initiatives in the US. However, your help in identifying prospective papers and encouraging prospective authors, or even submitting manuscripts to *NCEJ* yourself, is sorely needed. For NOISE-CON Conferences, the goal is make them into the "must go to" noise and vibration control conference in North America. Joint meetings with other organizations and efforts of many volunteers within INCE/USA have furthered this, but there is still more to be done and a need for INCE/USA membership support. Finally, there is the issue of INCE/USA membership. For the past decade, our membership has hovered at slightly more than 1,000. This is probably a small fraction of the people who work in the field of noise and vibration control on a daily basis. The issue is how can we reach out to these people to engage them more in the field of noise control engineering as well as learn from their experiences? As with the other issues, there has been and are ongoing on initiatives to address this, however, the support, ideas, and contributions of our membership are also needed.

In closing, I will say that I am looking forward to these next two years to serve INCE/USA, our membership and our very dedicated and capable Officers and Directors. I would appreciate any thoughts, ideas, or questions you may have on the above topics or INCE/USA in general. ■

*The Profile of
Science and
Technology
Careers Needs to
be Raised*

Danish Results for Cost-Benefit Analysis of Noise Control

Belgium

ISMA 2006 to be held in September

The ISMA2006 Noise and Vibration Engineering Conference will be held in Leuven, Belgium on 2006 September 18-20. ISMA2006 is part of a sequence of annual courses and biennial international conferences on structural dynamics, modal analysis and noise and vibration engineering, organized by the PMA Noise & Vibration research group of the department of Mechanical Engineering of the K.U.Leuven. The conference provides a forum for engineers, researchers and other professionals active in the field of testing, analysing and modeling the vibration and acoustic characteristics of mechanical systems.

Parallel to the conference, an exhibition on noise and vibration related hard- and software will be organized. This exhibition will give the conference attendants the opportunity to see the latest products in the field of noise and vibration analysis. Details may be found at www.isma-isaac.be/conf/exhibition.html.

For information on the technical program, go to www.isma-isaac.be/conf, and for further information, contact the ISMA Conference secretary, Mrs. Lieve Notré, K.U.Leuven, PMA Division, Celestijnenlaan 300B, B-3001 Heverlee, Belgium. Telephone: +32 16322482, Fax: +32 16322987; e-mail: mailto:lieve.notre@mech.kuleuven.be

Denmark

Papers on Road Traffic Noise and Pavements are Available

Hans Bendtsen, a Senior Researcher on Transport noise, Danish Road Directorate/Danish Road Institute and his colleagues Bent Andersen and Lars Ellebjerg Larsen have produced a note with short presentations of the papers that we found relevant for their research in cooperation with the Dutch Road Laboratory (DWW) on development and testing of noise reducing pavements (the DRI-DWW noise abatement program). <http://www.vejdirektoratet.dk/publikationer/VInot027/index.htm>

Four papers have now been published by the Danish Road Institute.

- On cost benefit and noise planning:
<http://www.vejdirektoratet.dk/publikationer/VIrap142/index.htm>
- On new ideas for urban noise abatement:

<http://www.vejdirektoratet.dk/publikationer/VIrap143/index.htm>

- About experiments with two layer porous pavements:
<http://www.vejdirektoratet.dk/publikationer/VIrap144/index.htm>
- About experiments with thin layer noise reducing pavements:
<http://www.vejdirektoratet.dk/publikationer/VIrap145/index.htm>

United Kingdom

New Noise at Work Regulations

Health and Safety Executive has supplemented roadshows held in 2005 with additional events in 2006 to explain new European Union based requirements on exposure to vibration and new U.K. regulations on noise at work that were approved in 2005 and went into effect in 2006 April. Information on these roadshows may be found at <http://www.hse.gov.uk/vibration/roadshow2006.pdf>.

Information on these regulations and links to the regulations themselves have been posted at <http://www.hse.gov.uk/noise/regulations.htm>.

A summary of the regulations by the Perry Scott Nash Group in the U.K. has been posted at <http://www.perryscottnash.co.uk/2005-09NoiseAtWork.asp>

Handling Complaints about Low Frequency Noise

A meeting on Handling Complaints about Low Frequency Noise was held on 2006 May 15 at Salford University. This meeting was organized following recent research work and the publication by the Department for Environment, Food and Rural Affairs (Defra) last year of a procedure for assessment of low frequency noise complaints. It was of particular interest to Environmental Health Officers (EHOs) and consultants dealing with low frequency noise issues. The procedure was described and case studies were presented by EHOs who have experience of applying the procedure in real cases. A clinical description was also be given to provide insights into how troublesome sounds are perceived.

A laboratory session was included so as to give a chance to listen to genuine LFN recorded during

recent field tests. Delegates were asked to rate their reactions to the sounds, the results of which were collated and presented at the end of the day. Delegates also had the opportunity to listen to room modes and to witness the relationship between loudness and sound pressure level for low frequency sounds. Although the meeting is past, the program is still available on the Internet at <http://www.ioa.org.uk/viewbranchdocs.php?branchdocsID=80>.

A great deal of information on low frequency noise may be found on the Defra web site. Go to <http://www.defra.gov.uk> and search for *low frequency noise*. There was also a meeting on May 23 on the Defra research program. The program may be found at <http://www.ioa.org.uk/viewgroupdocs.php?agroupdocsID=104>.

Salford University to Initiate Soundscape Program

Salford University will begin a program to examine the positive aspects of soundscapes. The program, to begin in 2006 October, is funded by the U.K. Engineering and Physical Sciences Research Council (EPSRC). More details on the program may be found at http://www.acoustics.salford.ac.uk/research/davies_files/projects/soundscapes/positive_soundscapes_home.asp. 

INCE Update *continued from page 74*

Advertising Manager and INCE/USA Exposition Manager. Ralph Muehleisen of the Illinois Institute of Technology was appointed to a new position of Chair for Student Activities.

Christopher W. Menge of Harris Miller Miller & Hanson was elected to the Board for a three-year term which expires in 2008. Also elected for the same term were Kerrie G. Standlee of Daley-Standlee and Associates, Inc. and Daniel J. Kato of Cummins Power Generation. 

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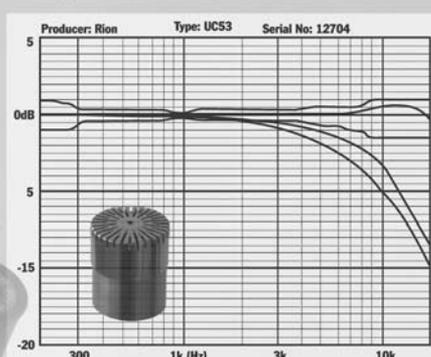
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RION

New 4-Channel Solid-State Data Recorder From Scantek

The RION DA-20 is a compact 4-channel data recorder that provides users a lightweight and high quality instrument to record various types of electronic signals and waveform data for audio recording and sound and vibration on-site measurement. Transducers that can be used include constant current Electret condenser microphones and single- and tri-axis accelerometers. The measurement data are stored on a memory card (CF card) in WAV file and the stored data can be reproduced as analog signal or output to an external signal analyzer. The CF card enables easy access to stored data download to PC, and the software DA-20 Viewer (supplied accessory) enables the time-history data display on PC or via WAV/CSV file output to PC. Optional software line-up is also available for waveform analysis.

Scantek

New Features for the Norsonic N-121 Sound and Vibration Analyzer

Scantek has announced the availability of the latest version of software/upgrade for the Norsonic N-121 Noise and Vibration analyzer. Some of the features of the existing versions of software are to:

- trigger measurements in many ways, such as level above an ambient
- audio record more than 24 hours of data
- trigger to change analysis, record event, or start and stop measurement, or all three
- single or dual channel measurement
- 0.1 to 20 kHz frequency range
- all parameters measured simultaneously
- pure tone detection and FFT analyzer
- annoyance monitoring
- months of data at 4ms resolution

With v.4 software the meter now has the following features;

- Pre weighting of spectra
- NC, NR, and RC curves measured and calculated from 1/1 octave or , derived from measured 1/3rd octave spectra
- reference tone in audio recordings
- preset standards in the pure tone mode including ISO 1996-2, Nordic method, among others

- equalizer built in to adjust noise generator for optimum output
- the new swept sine technique for fast and accurate building acoustics
- broadband impulse response

New High Quality Free-field Array Measuring Microphone

Scantek, Inc. has announced the availability of a ¼" microphone with extremely flat frequency response useful for arrays that require multi microphones and for controlled environments. The precision measurement microphones, BSWA MPA416 are 1/4" prepolarized and free-field. Features:

- high sensitivity-50 mV/Pa (unusual for ¼" microphones)
- low noise floor - 27 dBA
- flat frequency response- 20 Hz - 20 kHz: (complies with IEC61672 Class 1 tolerances.)
- phase match: (guaranteed phase- match tolerances)

Portable Aircraft Counter Based on Sound Levels

Scantek, Inc. has announced the availability of the SCA- PAC1 Portable Aircraft Counter. This system, consists of an environmental kit, with a RION NL-21 Sound Level Meter and the Scantek ASNL21 software package which, together, allow the counting of aircraft take-offs at unattended general aviation airports.

The system is set to monitor, for two to three weeks, the runways of the surveyed airport, with the data being stored on the instrument compact flash card. At the end of the measuring period, the memory card is exchanged if further measurements are required. The CF card is read with PC running the easy-to-use ASNL21 software under Windows XP™ with Excel™. The data are automatically categorized and counted and seasonal reports are issued.

Highlights:

- small, light, compact hardware:
- easy to use hardware software
- reasonable accuracy
- customized reports
- technical assistance provided
- affordable

Scantek, Inc., an ISO 17025 NIST accredited Calibration Laboratory, is a distributor for multiple sound and vibration lines, including Norsonic, RION, CESVA Acoustical Instrumentation, Castle Group,

RION

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Larson Davis

LMS

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For more information (USA, Canada), call +1 800 224 3813 or visit www.scantekinc.com. Or, send inquiries by mail to: Richard Peppin, President, Scantek, Inc., 7060 #L Oakland Mills Road, Columbia, MD 21046

Larson Davis

Larson Davis Debuts Model 831 Handheld Sound Level Meter/Analyzer for Environmental Noise Analysis

Larson Davis, a PCB Group Company, has introduced the Model 831, a Class 1 handheld sound level meter with exceedance-based logging analysis (ELA) for community noise assessment.

Model 831 features a small, lightweight ergonomic design; real-time 1/1 and 1/3 octave spectra, and comes standard with a 120 dB dynamic range. Ten customizable markers are provided to annotate time history data. The sound level meter also has audio and voice recording with replay, supported by up to 2 GB of on-board memory and optional USB 2.0 data stick.

For unattended noise monitoring, its event-based logging routines process data on-board to provide time/date, duration, average and max/min sound levels, frequency spectra, time history records of selected sound levels and even digital sound recordings for each event. The routines are specifically designed to save the user time in downloading and post-processing massive amounts of unprocessed sampled data.

For optimal digital communication, the Model 831 provides a USB 2.0 port to communicate with a PC for instrument control and downloading data. In addition, using native support for TCP/IP and built-in USB host port, the 831 can interface directly with GPRS and Ethernet devices for simple Internet connectivity. The unit features one-hand operation, and has an easy-to-read backlit display, whether in direct sunlight or in a dark factory environment. Plus, when used with a PC, the USB cable provides instrument power and recharges batteries, much like an MP3 player.

A full line of accessories is available including software, sound level calibrators, outdoor microphones systems with electrostatic actuators, weatherproof enclosures for short and long-term monitoring and a variety of tripods and tilt-down poles. All Larson Davis products are accompanied by full technical support and our guarantee of total customer satisfaction.

For more information, please contact Larson Davis toll-free at +1 888 258 3131, email sales@larsondavis.com, or visit www.larsondavis.com.

LMS

LMS Introduces New LMS SCADAS Mobile Front-Ends and LMS Test.Xpress Analyzer

LMS has announced a series of major novelties and extensions to its offering for noise and vibration testing and engineering. The LMS SCADAS family has been extended with a new LMS SCADAS Mobile series of mobile and ultra-portable data acquisition front-ends. LMS Test.Lab is tightly integrated with the new SCADAS Mobile front-end and provides a solution for mobile noise and vibration testing. LMS also strengthens its offering in the areas of qualification, and troubleshooting testing with LMS Test.Xpress, a sound and vibration analyzer and data recording solution, based on the same LMS SCADAS Mobile front-end for high measurement and testing productivity.

LMS SCADAS Mobile provides up to 102.4 kHz sampling rate per channel, 24 bit resolution, 105 dB signal-to-noise ratio, and a throughput rate that exceeds 2.2 Msamples/s. The LMS SCADAS Mobile SCM05 system offers a compact and modular front-end that accommodates 4 up to 40 channels, all packed in a portable, laptop size unit. For users who prefer a smaller channel count unit, LMS also introduced the LMS SCADAS Mobile SCM01, which hosts 4 to 8 channels, and provides the ultimate solution for portability.

In addition to the new LMS SCADAS Mobile front-ends, LMS has also introduced LMS Test.Xpress, a sound and vibration analyzer that is said to combine the operation simplicity of the traditional analyzer with the high-speed performance and measurement quality of an advanced noise & vibration measurement system. LMS Test.Xpress

runs on the same LMS SCADAS Mobile front-end and offers a powerful, compact and lightweight analyzer solution. Its real-time capabilities allow users to perform FFT, order and octave analysis with sound level meter functionalities in a single measurement run. LMS Test.Xpress shows the analysis results instantaneously on screen, while saving the high-sampled time data on disc. Users can validate results immediately after the test, while the system gives a first diagnosis on the spot and brings results in an MS Office report in just a single mouse click. LMS Test.Xpress is fully interoperable with the LMS Test.Lab suite for advanced post processing of test data.

LMS Test.Lab helps Streamline Body Design at Toyota's European Technical Center

LMS International has announced that LMS Test.Lab has been deployed as one of the primary systems for vehicle noise and vibration testing at Toyota's European Technical Center in Zaventem, Belgium. The expanded center was recently inaugurated as part of Toyota's initiative to localize its European design and engineering operations. LMS Test.Lab was deployed within the center's NVH development team and supports the team in taking on full-vehicle NVH engineering responsibilities.

Based on worldwide Toyota platforms, the European Technical Center will develop upper bodies for European car models. They will test, select and develop these body parts intensively together with European suppliers. Development centers in Japan will continue to design vehicle platforms, including the chassis, engine, and suspension systems. Previously, vehicles were developed bumper-to-bumper in Japan and prototypes were sent to Zaventem for noise and vibration testing to ensure cars were in compliance with European market requirements. Design changes recommended by the European center were then confirmed and implemented by the development teams in Japan. By bringing investigation and implementation decision closely together, the new process is intended to shorten the development cycle, reduce the number of prototypes and expedite the hand-off to production. Benefits for Toyota will be a faster response to market demands and reduced product development costs by reinforcing Toyota's relationship with their European suppliers.

The new process shifts an increased workload and new competency requirements to the European NVH group, which now must set design targets for the European versions, perform individual prototype tests in less time, and ensure high production quality levels within the European manufacturing plants — all in a compressed timeframe with existing staff.

To boost the efficiency of the group in handling these additional tasks, Toyota is broadening its implementation of LMS Test.Lab for noise and vibration testing while reducing the application of older measurement platforms. LMS Test.Lab enables Toyota engineers to perform analysis in real time, with results immediately displayed as tests are being run. This gives testing teams greater insight into sources of problems and possible remedies. By quickly determining the root cause of problems in this manner, for individual assemblies as well as the complete vehicle, engineers can more readily find the best solutions.

Visit www.lmsintl.com for more information on LMS.

illbruck acoustic

illbruck acoustic Introduces Natural Grey willtec® for its Acoustical Products

illbruck acoustic has introduced natural grey as the new standard color for willtec, the core material in its acoustical products for wall panels, baffles, ceiling tiles, multilayer composites and HVAC duct liners.

Natural grey willtec products have consistent color throughout their entire thickness. If the products are cut, broken or marred, the exposed interior color matches the exterior color. willtec is made from lightweight porous melamine foam. It is Class 1 fire rated, meeting ASTM E-84 requirements for flame spread and smoke density, and passing the UL 1715 room fire exposure test. The versatile foam can be exposed to constant temperatures up to 300° F and short-term temperatures up to 482° F. It will char, but will not ignite, at temperatures up to 1120° F.

willtec foam's open-cell, fiber-free structure gives it extremely low density and lightweight, flexible qualities. The open cells allow the foam to absorb the acoustic energy over a wide range

illbruck acoustic

PCB® Piezotronics

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For a product sample, contact illbruck acoustic, +1 800 662 0032, or visit the company's Web site, www.illbruck-acoustic.com/grey.

PCB Piezotronics

New Model 377B01 Free Field 1/4" ICP™ Microphone.

The Vibration Division of PCB Piezotronics, Inc. (PCB®) introduces Model 377B01 prepolarized, 1/4" Free Field response-type microphone which operates from ICP® sensor power. The distinguishing feature of this model is its enhanced frequency rating of 90 kHz (± 2 dB.) It has a sensitivity rating of 3 mV/Pa and a wide dynamic range (30 to 166 dB(A) re 20 μ Pa). This microphone has a 120° C operating temperature range.

This model is one of a full series of modern, prepolarized, condenser microphones and preamplifiers available from PCB. Powered by a 2 to 20 mA signal conditioner and standard coaxial cables, these modern designs allow for significant savings in power supply and cabling cost, greater ease-of-use and operate from the same power required for ICP® accelerometers. This provides the advantage of using microphones with ICP® accelerometers in the same test, with the same signal conditioning equipment, minimizing set-up time.

A2LA Accredited Condenser Microphone Calibrations.

PCB® Piezotronics has been approved by A2LA for Type 1 microphone calibrations. PCB recognized the growing requirement among manufacturers and made the investment to be compliant and receive the ISO 17025 accreditation by A2LA. All Type 1 (377 Series) prepolarized and externally polarized microphones, or comparable microphone and preamplifier combinations (when calibrated together as a system) will have a calibration sheet that is ISO 17025 Accredited by A2LA.

PCB has a complete line of modern prepolarized (0V) and traditional externally polarized (200V) microphones to go along with the value oriented array electret microphones, to service just about any sound pressure level, NVH or holography application.

New Model 379A01 Array Stand Accommodates up to Sixteen Microphones.

The Vibration Division of PCB Piezotronics, Inc. (PCB®) announces the addition of the Model 379A01 Microphone Array Stand to its line of acoustic measurement products.

The Model 379A01 array stand includes the grid and all necessary configuration hardware for proper mounting of a 16-microphone array with 8 cm spacing. To optimize design flexibility, the 379A01 can be used as 1 x 16; 4 x 4; or 2 x 8 grid configurations; arrays are adjustable both horizontally and vertically; rotated; or can be tilted forward and backward. A built-in inclinometer attached to the grid base enables the user to verify angles used for measurement, and ensures any subsequent measurement configurations can be replicated identically. Associated microphones, power supplies and cabling can be purchased separately or as a kit, to satisfy system requirements. The kit contains the microphones and sufficient 6.1 m (20-ft) microphone cables, for connection to an included patch panel and accompanying 7.6 m (25 ft) ribbon cable.

PCB offers a variety of acoustic measurement products, including modern prepolarized, traditionally externally polarized, array, probe, low-profile surface, and special purpose condenser microphones. Microphone products are complemented by an assortment of preamplifiers, signal conditioners, A-weighting filters, handheld calibrators, and accessories.

New Model 426B02, 1/2" In-Line A-Weight Filter.

The Vibration Division of PCB Piezotronics, Inc. (PCB®) introduces Model 426B02, 1/2" in-line A-Weight filter, which operates from ICP® sensor power and is designed to work with prepolarized microphones. The filter is commonly used in automotive, aerospace, and appliance testing applications, among others, where manufacturers are concerned about how the human ear perceives sound pressure levels at the different frequencies generated by their products. The goal is for safety

or to make the sound as pleasing to the ear as possible. The Model 426B02 can be attached directly to the ½" preamplifiers BNC connector, or between the preamplifier and a 4 to 20 mA constant current supply, via low cost coaxial cables.

This ICP® design allows for significant savings in power supply and cabling cost, greater ease-of-use and operates from the same power required for ICP® accelerometers. This provides the advantage of using microphones with ICP® accelerometers in the same test, with the same signal conditioning equipment, minimizing set-up time.

Rotary Torque Sensor Systems for Automotive Driveline Testing.

Rotary Torque Sensor Systems from the Force/Torque Division of PCB® Piezotronics, Inc. are ideally designed for automotive driveline and powertrain dynamometers and other torque measurement applications that require a robust torque transducer. The TORKDISC® features

a telemetry system consisting of an on-board electronic module that converts torque signals into a high-speed 16-bit digital output. Rotary Transformer styles are also available that use a non-contact, maintenance-free, design that eliminates the need for replacing worn brushes, as is the case with conventional slip ring type rotating torque sensors.

Typical applications include dynamometer testing of gasoline and diesel engines, transmissions, transfer cases, differentials and drive shafts. Additional applications include torque studies on pumps, fans and electric motors. Rotary torque sensors are offered in capacities from 50 in-oz to 225 k in-lb (0.35 N-m to 25.4 k N-m) full-scale and maximum speeds to 15,000 RPM.

For information on all PCB Piezotronics products, contact Andrea Mohn, Marketing Coordinator, PCB Piezotronics, Inc., 3425 Walden Avenue, Depew, NY 14043-2495. Telephone: +1 800 828 8840 ext. 2216, Fax: +1 716 684 0987. E-Mail: mktg@pcb.com. Internet: www.pcb.com.

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The 2006 International Congress and Exposition on Noise Control Engineering

Inter-Noise 2006, the 2006 International Congress and Exposition on Noise Control Engineering, will be held at Sheraton Waikiki, Honolulu, Hawaii, USA, on 2006 December 3–6. Organizers are the Institute of Noise Control Engineering/Japan and the Institute of Noise Control Engineering/USA.

Inter-Noise 2006, which is expected to draw as many as 1,000 participants, follows the joint ASA/ASJ meeting at the same venue. Registration and full conference details (including a list of exhibitors and sessions) are available at the Congress Web site.

Early registration deadline is 18 August 2006.

-  Honolulu, Hawaii, USA
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-  3–6 December 2006
-  www.internoise2006.org

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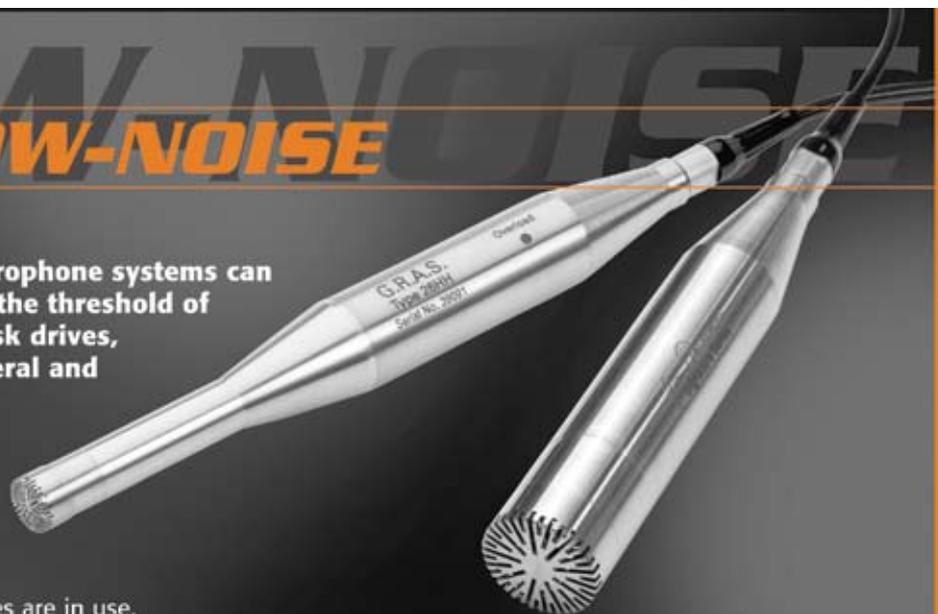
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A quiet location can easily be subjected to intrusive noise when many otherwise "inaudible" devices are in use.

It is therefore important to know in advance (via accurate measurements) the noise contribution of quiet products when many of these are to be placed in quiet working environments.

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Type 40HF has a dynamic range from -2 dBA to 110 dB (-15 dB 1/3-oct.) re. 20 µPa over a frequency range from 10 Hz to 10 kHz ±2 dB



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Portugal	Laboratorio Nacional de Engenharia Civil, Lisboa
Sweden	Department of Applied Acoustics, Chalmers University of Technology, Gothenburg
USA	Graduate Program in Acoustics, The Pennsylvania State University, State College, Pennsylvania

Conference Calendar

Below is a list of congresses and conferences sponsored by International INCE and INCE/USA. A list of all known conferences related to noise can be found by going to the International INCE page on the Internet, www.i-ince.org.

2006 September 18-21

ACTIVE 2006

The 2006 International Symposium on Active Control of Sound and Vibration

Adelaide, Australia

Contact: ACTIVE 2006 Conference, School of Mechanical Engineering, The University of Adelaide, SA 5005 Australia

Internet: www.active2006.com

2006 December 03-06

INTER-NOISE 2006

The 2006 International Congress and Exposition on Noise Control Engineering

Honolulu, Hawaii, USA. Contact: Institute of Noise Control Engineering, INCE/USA Business Office, 210 Marston, Iowa State University, Ames, IA 50011-2153. Tel. +1 515 294 6142; Fax: +1 515 294 3528; e-mail: IBO@inceusa.org. Internet: <http://www.inceusa.org>.

2007 August 26-29

INTER-NOISE 2007

The 2007 International Congress and Exposition on Noise Control Engineering

Istanbul, Turkey.

Contact: Turkish Acoustical Society

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İc Levent, 34330 Istanbul, Turkey

Tel: +90 212 279 95 22 • Fax: +90 212 264 65 07

E-mail: contact@internoise2007.org.tr

Internet: www.internoise2007.org.tr

2007 October 22-24

NOISE-CON 07, The 2007 National Conference on Noise Control Engineering

This conference will be held at the Grand Sierra Resort in Reno, Nevada. Contact: Institute of Noise Control Engineering, INCE/USA Business Office, 210 Marston, Iowa State University, Ames, IA 50011-2153. Tel. +1 515 294 6142; Fax: +1 515 294 3528; e-mail: IBO@inceusa.org. Internet: <http://www.inceusa.org>.

Directory of Noise Control Services

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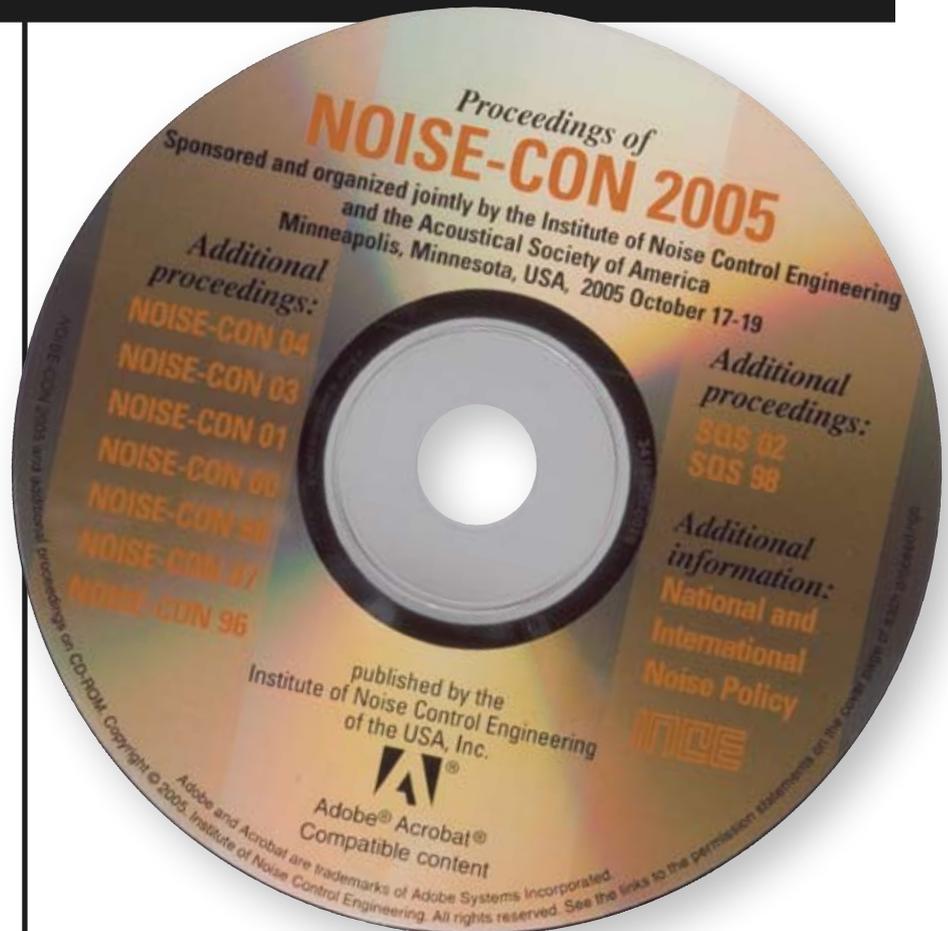
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