

A Newsletter from **Stewart Acoustical Consultants** and **F.C.Schafer CONSULTING**
7330 Chapel Hill Road, [Suite 201](#) Raleigh, NC 27607
Ph. 919-858-0899 sac@sacnc.com *Making our World Sound Better Since 1979*

Noral Stewart receives Laymon N. Miller Medal for Excellence in Acoustical Consulting



Dr. Noral D. Stewart became the fourth recipient of the Laymon N. Miller Medal for Excellence in Acoustical Consulting at Internoise 2018 in Chicago on August 29, 2018. This medal awarded in alternating years by the Institute of Noise Control Engineering and the National Council of Acoustical Consultants recognizes an “individual who has practiced acoustical consulting in an exemplary manner over a sustained period of time, to improve acoustical environments in and around buildings, transportation systems, work places, recreational and other occupied spaces, such that the quality of life for citizens and communities is significantly enhanced.” The award for Dr. Stewart was specifically for “sustained sharing of his acoustical expertise with colleagues and clients to create better acoustical environments and standards to evaluate them”. The award is named for legendary acoustical consultant Laymon Miller, known for his teaching of noise control basics to many acoustics professionals, his clear communication, and his sharing of his experience with colleagues.

Welcome Sidd Mahajan



In 2016 we briefly introduced you to Siddharth Mahajan as one of our interns. Sidd finished his MS last summer and we have hired him as a full time professional staff member. He first became involved in the study of acoustics and vibration as part of his senior project for his BS in Engineering. As a musician playing several instruments, he had long had an interest in sound (like Joe). This all led him to NC State and the program that has trained Noral, John Stewart, Joe, and Mathew. His thesis on Focusing of Ultrasound using Self Bending Beams

may not seem directly applicable to our work. However, it demonstrates his ability to do good work and communicate it effectively. Sidd has strongly impressed us as he has jumped right into doing jobs efficiently.

| <i>Inside This Issue:</i> | |
|---|---|
| Laymon Miller Medal – Welcome Sidd | 1 |
| Bridger, John Stewart, Acoustic Camera | 2 |
| Classrooms, Cathedral | 3 |
| Green Buildings, Building Code , Honeycutt Book | 4 |
| Reuter, Our Intern, NC-ASA Awards | 5 |



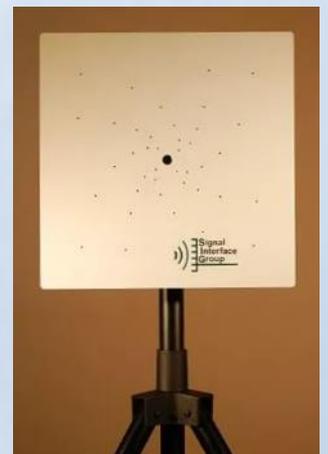
Joe Bridger is General Manager of Firm – Also VP of NCAC

In recognition of his expanded responsibilities in the operation of the firm, Associate Principal and Principal Consultant Joe Bridger has been named General Manager of Stewart Acoustical Consultants. Joe takes on more responsibility for day to day operations as Dr. Stewart continues part-time work. Joe has also been recognized by the National Council of Acoustical Consultants as an NCAC Principal of the firm, and has been elected Vice-President of Finance of NCAC.

Exciting New Technology acquired by Stewart Acoustical Consultants The Acoustic Camera – Visualization of Acoustical Radiation and Leaks



The firm has acquired a Signal Interface Group ACAM 120 acoustic array camera and Optinav BeamformX software. This total system with a 40 microphone array allows us to aim at sound sources or locations of suspected leaks and visualize the strength of the sound present and radiating. This is an advance beyond the two-sensor sound intensity system that allows scanning large sources from distant points to identify where the sound is coming from. We look forward to many applications of this exciting new cutting edge methodology in all kinds of projects, environmental, architectural, and industrial.

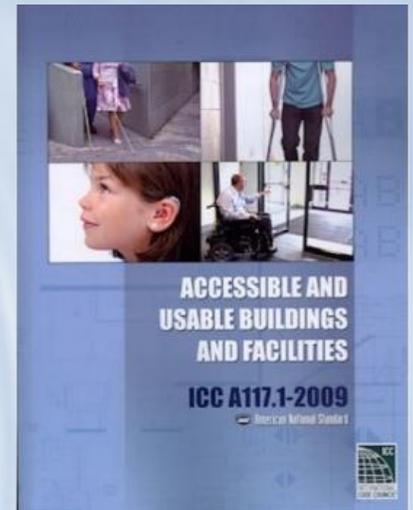


John Stewart, inducted into NCSU Mechanical Engineering Hall of Fame

Our chief consultant in industrial and machinery noise and vibration control John Stewart has joined Noral Stewart in the Hall of Fame of the NCSU Department of Mechanical and Aerospace Engineering. John is the world recognized leader in control of noise in woodworking machinery as well as an expert on machine design. The goal of the Hall of Fame is to recognise the top 1 percent of graduates of the department based on career achievement. Around 20 to 40 graduates have been recognized each year since 2013.

ANSI S12.60 Classroom requirements coming to 2021 IBC Model Building Code

The recently adopted 2017 version of the standard **ANSI A117.1 Accessible and Usable Buildings and Facilities** includes a requirement that ANSI S12.60 be followed in the design of schools. This standard is referenced as a requirement in the model International Building Code which forms the basis of the building code adopted by local and state governments. There is some time lag. The approval of the new version of the standard was too late to be referenced in 2018 model building code. Thus, it will be in the 2021 model code. It is not unusual for some localities to take 1 to 3 years to adopt a new model code once released, and localities can make local changes to delete or modify some requirements. Thus, it is not immediate and may not be adopted universally, but this is another step along the path of assuring classrooms and school facilities in which students can clearly hear what they need to hear.



Look for our New Look

In celebration of our 40th Anniversary, our website, newsletter, reports and everything will soon have a new updated look. Watch for it.

Holy Name of Jesus Cathedral Dedicated in 2017



We are pleased to announce that it has been more than a year since the completion and dedication of the new Cathedral in Raleigh last year. Our team of Joe Bridger, Fred Schafer, and Sidd Mahajan worked on modeling and auralizing the acoustics of this challenging space and developing a sound system (teamed with AVCON of Cary) to provide the clearest possible speech in this large space that preserves the strong reverberation desired by the Diocese.

Expanded ASHRAE 189.1 standard for High Performance Green Buildings Approved – To be basis of International Green Construction Code.

A new expanded ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings was recently approved. This applies to all kinds of buildings except low-rise residential structures. Joe Bridger was among the leaders in the development of this document. Based on agreement with the International Codes Council, this essentially replaces the International Green Construction Code. It introduces acoustical requirements for sound levels, sound absorption and isolation into almost all kinds of buildings being built to a high-performance “Green” standard. This is much more than the basic isolation requirements for multi-family residential in the basic building code, and even those requirements are refined in this code. Anyone becoming involved in Green buildings should become familiar with these new requirements. Work to further refine and improve it for future versions is already underway.



Sound Isolation in the 2018 and 2021 IBC Model Building Code

The 2018 IBC model building code has two significant changes in Section 12.06. Previously this section on sound isolation applied only to isolation between “dwelling units” which were typically individual apartments or condominiums in multifamily buildings. This has now been expanded to “sleeping units.” This means that these requirements would apply between hotel rooms, dormitory rooms, hospital rooms and other similar situations. There is also new language saying “Alternatively, the sound transmission class of walls, partitions, and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions, and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90.” There is similar language for impact ratings. On the positive side, this could be helpful in some cases where assemblies have not been tested. However, there is a downside. Even the most knowledgeable people have trouble doing this in some cases, and there is nothing to keep someone who does not know what they are doing from rendering a completely erroneous opinion. Further changes have been proposed for the 2021 model code.

Dr. Richard Honeycutt Publishes Book



Our colleague Richard Honeycutt has authored a useful book “Acoustics in Performance.” Richard has a long history of writing articles for audio magazines. This book is an excellent and very readable reference for filling gaps in experience and education of anyone responsible for sound systems and acoustics in the operation of a performance venue or worship space. Unfortunately, another publisher has printed and is selling an earlier incomplete and unauthorized version of the book with a slightly different name. Look for the version by Elektor as pictured.



Eric Reuter is President-Elect of NCAC

Our affiliated consultant Eric Reuter of Reuter Associates in Portsmouth, NH has been elected the President-Elect of the National Council of Acoustical Consultants. Eric is also currently the Chair of the Technical Committee on Architectural Acoustics of the Acoustical Society of America.



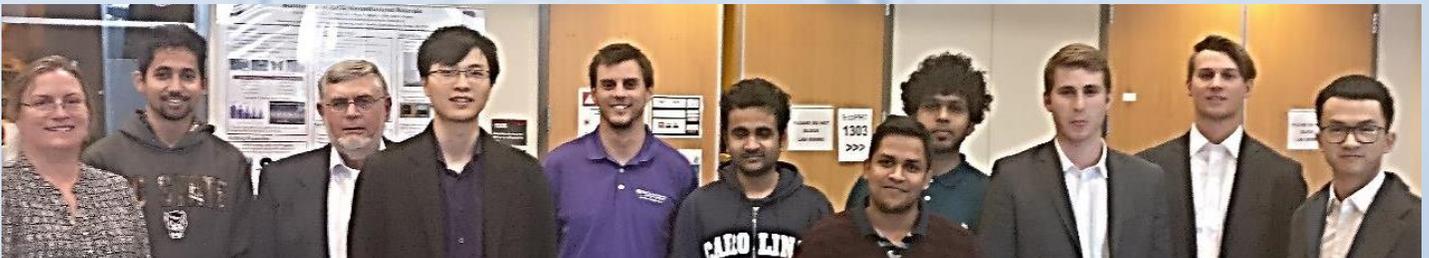
Our Administrator and Acoustics Intern Sinai Munoz Astorga

The first contact many of you have with us is through our administrator Sinai Munoz Astorga. Sinai is a senior in Mechanical Engineering at NC State where he also works in the ultrasonics research lab. He will be transitioning to more acoustics work this year, as he pursues a career in acoustics. He is a great addition to our team.



Acoustical Society of America – North Carolina Chapter Poster Competition

The North Carolina Regional Chapter of the Acoustical Society of America had a meeting and student poster competition at NC State University on November 17, 2017. After technical presentations by several speakers in the morning organized by Chapter Chair Dr. Yun Jing, the student competition organized by Chapter Secretary Sidd Mahajan featured thirteen posters from NC State, UNC Chapel Hill, Duke and East Carolina. Awards of \$2500 each made possible by a gift from former chapter chairs Larry and Julia Royster were made to Atul Rungta of the University of North Carolina at Chapel Hill, and Nikhil JRK Gerard of North Carolina State University. The Royster Awards are a national program rotated among regional and student chapters. Chapter awards of \$500 each for graduate students were made to Kaustav Mohanty of NC State and Zheng (Frank) Fang of Duke. Chapter awards of \$250 each for undergraduates were made to Noah Sonne of East Carolina and the team of Steven Jacobson and Simen Omholt-Jensen from Duke University. Judges for the event were Noral Stewart and John Gagliardi of Stewart Acoustical Consultants and Laurie Kamper of Threshold Acoustics.



From left to right: Kamper, Mahajan, Stewart, Jing, Sonne, Rungta, Mohanty, Gerard, Jacobson, Omholt-Jensen, Fang