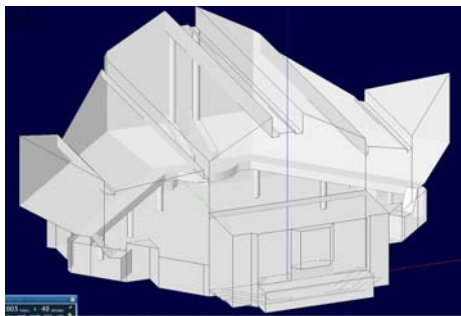


Posters on Worship Spaces to be Presented and Featured in new ASA Book



Our staff in cooperation with audio systems designers will be presenting fourteen posters on worship spaces at the Spring Meeting of the Acoustical Society of America in Providence, Rhode Island. These posters will then be featured in a book to be published by ASA covering worship space design achievements of the past 25 years. Cooperating with us in this effort are the audio systems designers for the various spaces: Fred Schafer of F. C. Schafer Consulting, LLC., Jim Brawley of James S. Brawley and Associates, Inc., Eb Strickland of Avcon, Inc., and Joe Davidson of Davidson Audio Video. The spaces chosen illustrate a variety of worship styles and both new construction and resolution of existing problems. The following spaces will be presented.



- | | |
|--|----------------|
| University City United Methodist Church | - Charlotte |
| Immaculate Conception Catholic Church | - Durham |
| Parks Chapel Freewill Baptist Church | - Fayetteville |
| St. Mary's Catholic Church | - Johnson City |
| St. Patrick's Episcopal Mission | - Mooresville |
| St. Paul's Catholic Church | - New Bern |
| North Raleigh United Methodist Church | - Raleigh |
| Our Lady of Lourdes Catholic Church | - Raleigh |
| St. Francis of Assisi Catholic Church | - Raleigh |
| St. Michael's Episcopal Church | - Raleigh |
| Wake Chapel Baptist Church | - Raleigh |
| Unitarian Universalist Fellowship of Raleigh | - Raleigh |
| First Free Will Baptist Church | - Wilson |
| Temple Emanuel | -Winston-Salem |



Multifamily Housing and Highway Noise Barriers

Many people in apartments and condominiums in North Carolina are being surprised that new highway noise barriers near them are not extending to protect them from increased highway noise. North Carolina no longer follows the same policy as most states and all neighboring states in evaluating multifamily developments for qualification for noise barriers. Until late 1996, porches, decks, or balconies that provided opportunities for outdoor activities qualified these homes for the same consideration as single-family homes. However, since then, those doing the evaluations have been instructed to observe for actual use of these outdoor facilities, in multifamily areas, a requirement not imposed for single family homes. If these facilities are not being used in the judgment of those doing the evaluation, the more difficult "indoor" or "Category E" criteria are applied. These criteria allow significantly more noise outdoors and indoors, including more than considered acceptable by other agencies. Due to the lag between implementation of the policy and construction, the results took a few years to be observed.

Cutting Travel Costs – Limousines, Trains, Video Conferencing

We have long recognized the hardship on our clients of the cost of a long driving trip for a brief visit. Examples would be a trip to Charlotte, Asheville, or Norfolk for a one or two hour visit or examination of a problem. If we drive, we must charge much of our driving time at full consulting rate. Flight schedules and the cost of airfare often make flying impractical. We have been surprised to find that it can be economical to hire a limousine and driver for such trips allowing us to work in the car on the way there and back. Charges to clients can be reduced substantially for short visits with long travel times. We are also looking at train travel in the Raleigh-Charlotte corridor as an option. We have also invested in setting up online meeting and videoconferencing capabilities in our office. We believe this will be a major benefit in the future for meetings that do not require sound measurements or physical examination of a problem. We strongly encourage clients to develop this capability.

What is the STC rating of a wall?

People are often confused in trying to establish the STC rating of a wall or IIC rating of a floor-ceiling. A common mistake is to find one result in a table somewhere and think that result is valid. It may be the highest result ever tested for that wall and much higher than typical. Establishing a reasonable expected result requires finding as much data as possible and comparing it. Unfortunately, much published information can be very misleading. [Read more about it in this new printable document on our site.](#)

Products Mentioned on our Website and in our Newsletter

You will notice that we have started mentioning some specific products in our Newsletter. These are not intended as general endorsements and are not paid advertisements. These are usually unique products available from only one supplier that meet special needs. Our intent is to make people who have such needs aware of these products that are usually new and that can sometimes be difficult to find. Suppliers with new or unique products should feel free to contact us.

A Different Acoustical Foam

Most acoustical foams are partially open cell and work by the mechanism of air flow resistance to absorb sound. This means that they also absorb water. Closed cell foams typically do not provide significant sound absorption. Quash developed by Dow is a different closed cell foam with thin cell walls. The cavities and thin walls serve as resonant vibrators to absorb sound. It is acoustically characterized by one region of good absorption around 500 Hz and another at higher frequencies. Its major advantage is its ability to be exposed to water including pressure washing. [More information is available from the distributor.](#)

Hear Communication Radio through Ear Plugs

Up until now people who needed to communicate over radios in noisy workplaces had to wear over the ear muff type headsets. While these work, they are bulky and can be uncomfortable in some environments. Workers much prefer earplugs in those environments. Now there is a solution that allows the use of a rated earplug with a controlled level of sound from a radio routed through it. [One version](#) uses a standard radio shoulder microphone with the speaker output routed through a level control device and tube through the ear plug. [A two-way version](#) adds a boom microphone.

Fiberglass Shortage - Price Increases

We have learned there is a fiberglass shortage in early 2006 that could continue through the year, and this is significantly affecting the prices of sound absorptive products.

Sound Absorption with Sintered, Micro-perforated, and Cracked Materials

We commonly see perforated metal used as a protective covering over fiberglass or foam sound absorbers. However, the typical hole sizes can create problems if particles or even insects might get through the holes. Use of foams or fibers also creates problems sometimes. Fortunately, the holes in these protective coverings can be made very small without creating acoustical problems, and in fact making the acoustical performance better. Very small holes can even create an absorption effect in the panel itself allowing the foam or fiberglass to be eliminated without losing all the absorption. The absorption can be enhanced some by control of the size of the air cavity behind the panel, and by subdividing that cavity. Thus, you can create an absorptive surface with a surface panel that has very small holes, and a cavity typically one to two inches deep that is either hollow, subdivided, or filled with a fibrous or foam material to give different properties. At this [website](#), under "Industry" click on "absorption systems" and look for Fiberfree as an example of a microperforated panel. [Another company](#) does not punch holes completely through metal or plastic, but just enough to create a small crack. They also offer this in [plastic](#). Metals also can be sintered into small particles and pressed back together in a way that leaves a porous sheet. One manufacturer specializes in [aluminum](#) for both industrial and architectural applications, while another offers [other metals for difficult environments](#).

So You Want To Be Able To See Through That Sound Absorptive Surface, Like a Window

Large glass areas have always posed a problem in spaces where absorption was required by reducing the available area to treat. Now, micro perforation technology has been applied to clear and translucent plastics offering an option to achieve sound absorption while maintaining a view. Materials are available as very thin films or [thicker sheets](#) that are spaced a few inches from a normal window, or in composites of multiple layers.

North Carolina Chapter - Acoustical Society of America – 40 Years!

"On October 28, 1965, ten interested individuals met on the campus of North Carolina State University at Raleigh to discuss the possibility of establishing a North Carolina Acoustical Society."

So began the minutes of the organizational meeting of our chapter as written by our first Secretary-Treasurer, Grady Thomas. Those ten came from N. C. State University, the University of North Carolina, Duke University, Bowman-Gray School of Medicine, and the Long Engineering Company. The meeting was arranged by Larry Royster who was elected the first Chairman.

The following spring, in April 1966, the first technical meeting was held in the Amphitheatre of the Bowman-Gray School of Medicine in Winston-Salem. Membership in the chapter grew rapidly in the 1970's and 80's, spurred by interest in industrial noise control to meet OSHA requirements. Meetings during this period were usually spread over two days and often drew between 80 and 100 attendees and 14 to 17 exhibitors.

On April 6-7, 2006, the chapter will celebrate its 40th anniversary with a meeting at the Ramada Blue Ridge in Raleigh. Further information can be found at www.nc-asa.org. We are pleased to have as one of our speakers Dr. Gilbert Gottlieb who was the banquet speaker at that first meeting in 1966. You might find his [research](#) surprising.

Over \$6000 to be awarded to Students – Contributions Welcome

Fourteen students will be competing for the 2006 Royster Awards and additional scholarships funded by the North Carolina Chapter of ASA on April 7. Students will present posters on a wide variety of topics all in some way relating to noise control or hearing conservation. The primary award is from a fund contributed by Larry and Julia Royster. Additional awards come from funds raised by the chapter. Please contact us if you can make a contribution to the chapter scholarship fund.

Trains and their Horns – Trends and Potential Relief

We have observed a trend to locate more residential development in areas very close to railroad tracks including close to crossings where horns are sounding. Even without horns, trains present a challenge with strong low-frequency rumbling sounds of the locomotives. Horns are extremely loud to make sure they are heard. The horn sound can be heard for miles under the right conditions. As you get very close, it can be loud through even the best walls and windows.

Last summer, the US DOT announced a new policy to allow the elimination of train horns at some crossings provided certain conditions are met. The local community must fund the erection and maintenance of a failsafe crossing system that will positively prevent any vehicles from trying to cross the tracks as a train approaches. The system also must include stationary warning horns aimed at the approaching roadway, though these are not as loud as those on the train. More information is available at this [site](#).

Thin Floor Isolation Pads

The isolation of footstep sounds in multifamily buildings requires use of a resilient material under hard floor surfaces. The better materials for this can be up to an inch thick. A number of products in the range of 1/16 to 1/8 inch thick are being marketed. These sometimes are advertised with IIC test results in the range of IIC 70 which sounds quite impressive. However, these test results are obtained with thick, heavy concrete slab floors and a good isolated ceiling. Most commonly they are also laboratory results. It is much easier to isolate footstep sounds under these conditions. Results close to IIC 70 have even been achieved without a floor pad in laboratory tests that isolate the floor-ceiling structurally from the test chamber, eliminating flanking. In actual buildings, the floor pad is the only line of defense against flanking of the sound into the walls. Isolation of footstep sound is much more difficult in wood frame structures or even with lightweight concrete on steel deck. Thicker pads are required in these circumstances.

The Infamous Townhouse Wall

We have recently noticed that many builders are still using a traditional “townhouse wall.” This means that they build two complete gypsum walls using two sets of studs with a layer of gypsum on each side of each set of studs, leaving only about an inch between the two inner gypsum layers. One of these has to be built on the floor and then stood up. At one time this was required for legal townhouses so each had a complete wall. However, when California started enforcing sound isolation requirements in its building code, it was found this wall would not meet those requirements. Though it is two complete walls with four layers of gypsum, it will typically test only slightly better than a single wall and less than STC 50 as now required by the building code. Simply removing the gypsum in the middle improves the wall substantially, and reinstalling that gypsum on the outer surfaces makes a further improvement. North Carolina building code now requires STC 50 walls between units, and does not require this wall between townhouses.