

---

**THORBURN ASSOCIATES INC.**  
**Technology and Acoustical Consultants**  
**Designing Quality Environments**  
**eNewsletter**

---

**December 2009**

---

In this issue:

- Greetings and Season's Greetings
  - Focus on Acoustics: Containing fan and duct noise
  - Focus on Technology: Overhead microphone systems
  - Project Profile: USF Joint Military/ROTC Building
  - Product Review: WolfVision Visualizer
- 

**Greetings - and Season's Greetings!**

In a departure from our usual eNews format, this edition focuses on a single vertical market. The issues discussed here are relevant to all projects that have an audio or videoconferencing component, and we believe all readers will find something of value. The focus: distance learning for higher education.

We at Thorburn Associates wish you and yours a happy, healthy and enjoyable holiday season.

As always, it is our goal to make sure that Thorburn Associates is your single point of contact for all your Technology and Acoustical Design services. If you have an idea, question, or suggestions, please drop us a note at [enews@ta-inc.com](mailto:enews@ta-inc.com).

---

**Focus on Acoustics**  
**Containing Fan and Duct Noise**

During a recent tour of an existing campus, we were shown a classroom that was in the process of having a complete, bells-and-whistles audiovisual package installed to support a distance learning program. However, our project meeting quickly took an unscheduled detour when we noticed an acoustical issue with the space.

The issue was you needed to be within six feet of the person speaking to be able to understand what they were saying. The fan that supplied the air for that wing of the building was located directly over this room, creating sound levels that masked over the speaker and making their speech unintelligible. Until the rumble from the ductwork and the hiss of air flow is properly mitigated, the client is not going to be get full value from their AV investment.

The only way to fix this issue at this point in the project is to remove the ceiling and rework and box the duct work. This can be very costly and is obviously it's the kind of thing one

wants to try to anticipate and avoid, if possible, in the first place. Next best is to discover and resolve it during the construction phase. That's where dialogue at an early stage of the process can really save the day. Members of the core team - the audiovisual designer, the acoustical engineer, the architect, the project manager – should be asking questions and sharing an understanding about how a room is going to be used, before it is built. The next best scenario, although less than desirable, is to discover and resolve these issues during the construction phase; however this can lead to dealing with change orders that result in unnecessary expenses.

In the case of this particular building, the as-built drawings showed that there was an adjacent restroom, and by lengthening the ducts, the fan units could have been positioned over that less sensitive area. There are a number of tricks and methods available, including silencers, shaft enclosures, double wall duct or just plain heavier gauge duct work to reduce noise from the HVAC system. As always, your acoustical consultant can help you decide the best option for your scenario.

---

### **Focus on Technology Overhead Microphone Systems**

Your ears are really good acoustical measurement tools. Sit in a space alone sometime, clear your mind, and see how many different sounds you can identify. Very often, you will be able to pick out five or six sounds and then your ears will find the background noise level, which covers over the rest.

Performing this exercise will make you aware of familiar noises that are a regular part of your daily environment; the ones your brain has become accustomed to, thus tuning them out. However, in a new environment, your brain doesn't immediately filter out these commonplace noises. When you travel, how well do you sleep that first night? If you are like most of us, you toss and turn, waking up every time you hear the door close down the hall or a bus drive by.

Microphones used in audiovisual installations for distance learning or conferencing are like your ears and brain in an unfamiliar setting: they pick up everything. Unlike your brain, a microphone or other audio components can't make decisions about what to filter out – it can't selectively tune out what the people on the other end don't need to hear. Subsequently, the system transmits a lot of extra energy and unneeded information. The connection carries all this data / traffic to the far end for the listeners to try to sort out.

In lieu of a smart microphone that can selectively listen like a human being, a favored option is a microphone that can be positioned where it will pick up more of the desired sounds from the lecture or meeting, and less of the extraneous sounds. We have found a ceiling mounted system has proven a very worthy tool in this regard. The ceiling system contains a large clear acoustical barrier which keeps the noise from the ceiling out of the microphone and uses the other side to direct sound to the microphone element. We have found it a better all-around option than boundary microphones or goosenecks. The barrier minimizes the noise from the ceiling, which is the primary challenge with other ceiling microphone systems. All ceiling systems helps minimize the noise from computers fans and shuffling of papers that table top microphones more easily pick up.

A good microphone system, in conjunction with other good design procedures and acoustical engineering solutions, has allowed us to set up rooms that have satisfied some very critical listeners at the far end. Using the overhead boundary systems, critical listeners have stated that from the far end, the room sounds as good as - if not better than - the broadcast news.

---

## **Project Profile** **USF Joint Military/ROTC Building**

Thorburn Associates was honored to be on the team for the University of South Florida's most technologically advanced educational facility, located in Tampa. TA was engaged by USF to design the audiovisual systems for this state-of-the-art facility.

The building's five classrooms and three lecture halls are set up for videoconferencing, distance learning and webcasting. As often occurs, the project schedule and budget were both tight. TA was able to provide most of the items on USF's wish list to fulfill its mission to serve students on campus and remotely, and build in the capacity to readily expand the system as future funding allows. More than 370 undergraduate men and women currently participate in the USF ROTC programs, but not all of them attend USF. The distance learning facilitates training those enrolled at other schools that are without their own ROTC program, faculty, and facilities.

USF is among the nation's top 63 public research universities and one of 39 community engaged public universities as designated by the Carnegie Foundation for the Advancement of Teaching. The building was designed and built by J. Kokolakis Construction Co. and Baker-Barrios Associates.

---

## **Product Review** **Desktop Visualizer VZ-9plus<sup>3</sup>**

Before PowerPoint, there was the overhead projector, and you may well remember its use in the classroom when you were growing up. Whatever happened to the overhead projector? It grew up and became the WolfVision Visualizer. This straightforward, user-friendly presentation tool still has its place in learning and teaching, and WolfVision keeps making it better. Its third edition of the Visualizer VZ-9plus boasts a more elegant design and housing, simplified operation and improved picture quality. And it is ambidextrous – accommodating to either left-handed or right-handed operation. Visit [www.wolfvision.com](http://www.wolfvision.com) and tell them Thorburn Associates sent you.

---

## **THANK YOU FOR READING OUR eNEWSLETTER**

To subscribe/unsubscribe: <http://www.ta-inc.com/eNewsletter.htm>.

If you have any problems: [eNews@TA-Inc.com](mailto:eNews@TA-Inc.com).

We publish our eNewsletter once every two months. We are always looking for new topics and ideas. Please drop us a note at [eNews@TA-Inc.com](mailto:eNews@TA-Inc.com) with any comments or suggestions.

Copyright 2009. Feel free to quote any part of this newsletter; just give us credit and let us know how and where the quote will be used.

---

## **THORBURN ASSOCIATES INC.**

**Technology and Acoustical Consultants**  
**Designing Quality Environments**  
[www.ta-inc.com](http://www.ta-inc.com)

Corporate Office:	Castro Valley, California	510-886-7826
Regional Office:	Burbank, California	818-569-0234
Regional Office:	Morrisville, North Carolina	919-463-9995

[TA@TA-Inc.com](mailto:TA@TA-Inc.com) General Information Email  
Address

[www.TA-Inc.com](http://www.TA-Inc.com) Web site

[eNews@TA-Inc.com](mailto:eNews@TA-Inc.com) Newsletter

---