

Practical Guide to Selling Acoustic Solutions

Few topics are getting as much attention in our business as noise is in places where we work, eat, play, and live. As commercial interiors professionals we are frequently asked if we can help provide solutions to improve these environments acoustically. Collectively, our most frequent response has been to sell “acoustic” panels and attach them to walls or hang them from ceilings. But admittedly, most of us know little about the art and science of providing principally based acoustic solutions to our clients. Let’s change that!

Today’s planning approach to providing working environments has been one of minimalization; floors of polished concrete or hardwoods, open ceilings with exposed utilities, walls of glass, concrete and drywall. These six-sided boxes of hard surfaces provide few places for sound energy to dissipate and die...rather this sound energy bounces around and creates an echo-chamber effect that contributes to distraction and lack of focus and in some cases, even pain.

Numerous published surveys and studies from around the world validate this issue – most clearly indicate that noise levels in our workplaces, restaurants, schools and healthcare environments are the single most dominant issue expressed by all those who use them. These studies highlight the concern, but offer few, if any remedies. This represents a genuine sales opportunity for those willing to acquire a basic knowledge of acoustics and applicable products to provide solutions.

This is an opportunity for us in the commercial furniture business. Why us? There are two typical scenarios I encounter almost weekly.

Scenario One – a brand new facility is moved into, and one of the first places that gets noticed for bad acoustics are the conference and meeting rooms. You’ve seen these spaces – glass walls, hard-lid ceilings, or no ceiling at all – open to the deck above. These spaces often have a huge amount of echo or reverberation. The Audio-Video folks have installed state-of-the-art flat screens, speakers, webcams and controllers. Because the AV guys were typically the last ones in the space, they are typically called to help resolve – because it is after all, a “sound issue”. But for most AV technicians, unless you can plug it into the wall, their knowledge on repairing acoustic issues is limited. Additionally, the AV folks most often work with the IT staff at a firm who see acoustics as a facilities issue and punt the issue over to their facilities or office manager to resolve. The Facilities team typically call their furniture vendor to help resolve. In too many cases, the furniture team does not know how to resolve acoustic issues – but if they had, additional sales and relationship building opportunities would exist.

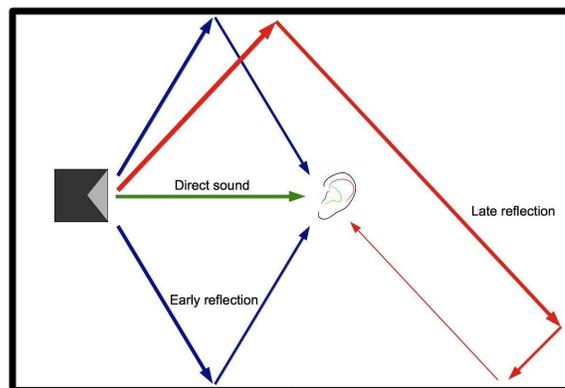
Scenario Two – complaints start building up from users regarding sounds coming from other spaces into the ones they are in. Like conference room conversations being heard outside the space, or private offices where conversations can be overheard either outside the office or in the adjoining office. Even traffic and road noise being heard inside an office or restaurant or even homes and hotels. Healthcare facilities are especially sensitive to this issue due to HIPPA requirements. Sound migrating from one space to another is a real and frequent complaint.

As office furniture professionals, we are well equipped to resolve the first scenario – but not Scenario Two situations. For some of the answer, a basic understanding of acoustics in interior spaces is required.

In the most basic understanding of acoustics that we need to be concerned with is understanding that sound is energy – air molecules bouncing up against each other transferring energy from one molecule to another – we call these soundwaves. Anytime these soundwaves encounter a surface or barrier, hard or soft, one of these three basic things happen – the soundwaves transit through the surface and continue on with varying degrees of their existing energy, or the soundwaves are reflected or bounced back off the surfaces and continue their travel with varying degrees of energy loss, or the soundwaves energy is absorbed and dissipated. Transit through, reflected off, or absorbed – these are the outcomes of sound energy encountering surfaces in their path.

We measure sound that transits thru a surface by rating the surface with an STC, Sound Transmission Coefficient. The scale for STC ranges from 0 to 70. The higher the better. Examples of surfaces with a high STC would be thick glass, concrete, brick, and insulated gypsum-board walls. To prevent unwanted sounds to enter into a space, you would want walls, ceilings, and floors with a high STC rating. Confidentiality, or lack thereof most typically results from sound transitioning from one space to another space.

Soundwaves that are reflected back into the space we are in, whether it be a closed interiors space like a private office, conference room or residential home or outside space like the Grand Canyon, we hear an echo. Echo is also referred to as reverberation by technicians, but for our purposes we'll refer to bounced sound within a space as echo. Often times a picture can replace a thousand words, so the illustration below will help us gain a better understanding of what causes echo. Whenever we hear a sound, we most often hear directly from the source. This is caused Direct sound. We also hear the same sound as it reflects off of other surfaces around us, floors, walls, streets, rock canyon walls. These are called "late reflections". These late arriving sounds, some nanoseconds behind the direct arriving sounds, causes what we experience as echo.



In order to reduce or eliminate these late reflected sounds, we need to add some soft or sound absorbing surfaces around us. The soft surfaces can be made of a variety of materials – the key to being an effective sound absorbing surfaces is their ability to convert the sound energy into heat by allowing the fibers in the sound absorbing panels to vibrate – vibrations convert sound energy into heat – and the fibers within the panel transfer this heat energy to adjoining fibers...and ultimately dissipate the heat throughout the entire panel. This is how sound is "absorbed" by acoustic panels and echo is eliminated within a space. We measure materials that absorb sound with an NRC rating; Noise Reduction Coefficient. The NRC rating scale runs from 0 to 1.0. The higher the rating, the better a material is at absorbing sound. A 0.9 panel is better than a 0.5 panel.

In short, echo is our business. Sound transmission is not...unless we're a General Contractor. As Furniture Professionals we can offer a variety of sound absorbing panels that we can install in our client's spaces to eliminate echo. Eliminating sound transitioning from one space to another requires constructing barriers or improving the existing ones typically with the addition of building materials; drywall, insulation, thicker glass and the like. Echo is our business!

There's another related challenge we get asked for; white noise. Too often the request comes into to me that "we need some White Noise for our office!" Often, they don't...but it's a typical entry point with clients to discuss what their acoustical challenge really is. What White Noise does is increase the ambient background noise in such a way that the audibility of individual words is diminished. White Noise typically sound like HVAC air rushing. In actuality its broadcast static through a series of speakers or emitters scattered throughout an interior space. Ever been in an office after hours or on the weekend when the air handling systems are turned off...and the space is "deathly quiet" compared to how the environment sounds when the air-handling system is active? By increasing the background ambient sound through the broadcasting of static sounds, we can improve the overall acoustic comfort of a space. Pink noise is closely related to white noise but incorporates the ability to broadcast music or other sounds, including paging, throughout a space. Often times white noise is better left to others since it takes a fairly sophisticated mapping process and integration of the emitters throughout the space and pulling both cable and electrical in order to activate the system.

So echo is our business! How do we start? First is to assure the issue the customer wants addressed is indeed echo – and not sound transmission. I typically clap loudly in a space to determine how much echo exists in a space. Once everyone agrees that echo is what they want eliminated, you need to determine how much sound absorbing material is needed. There is a formula you can use to help determine that. There are very sophisticated formulas available on the internet, but a good "rule of thumb" formula I use looks like this:

$$\text{SQ. FT. of the space} \times \text{Ceiling Height} = \text{Cubic Feet} \div 1000 \times 25 = \text{amount of material needed}$$

Take the length of a space times the width of the space times the ceiling height to calculate the total cubic feet of a space. Divide that by 1000 then multiply by 25, this will give you a great starting point of how much sound absorbing material is needed to improve the acoustic comfort of the space. Once we have the amount needed, we can apply that to the acoustic panels needed to develop a budget for the client.

A word on placement of panels in a space- its not as important as where you place the panels so long as you have the proper amount of material. Walls, ceilings, plenums are all good locations. If needed you can even free-stand panels in a space...just so long as the calculated amount of acoustical materials are in the space. You should be able to tell immediately the acoustic improvements to the space the introduction of acoustic materials has made. We are seeking acoustic comfort – not silence!

Summary

Our business is eliminating echo in interior commercial spaces. We can do that by installing the appropriate amount of sound absorbing materials in these spaces. You can calculate the amount of sound absorbing materials needed with a simple formula. The higher the NRC rating of the materials you are installing, the less of the materials you need. Placement is not as important as having the proper amount of material

placed into the space. There are a variety of materials available, and the best solution will be a combination of aesthetics, functionality and budget.

Acoustics has proven to be one of the greatest complaints in today's environments – by being able to offer a variety of science-based solutions will definitely differentiate your product offering to existing and new clients and help us grow your business!

Author Bio

Darrell Coutts has more than 30-years of experience in the Contract Furniture industry, working for Steelcase Corp, Steelcase, Haworth and Allsteel Dealerships – and several years in the Commercial Audio-Video industry working for a Top Ten US Integrator in the Seattle area. He is currently the Principal of Seattle-based Bravo Partners, a Manufacturers Rep Firm covering the Pacific Northwest and Pacific Rim.

Darrell has undergraduate degrees in Marketing and Economics from Adrian College, Adrian, Michigan, and an MBA in Finance & Accounting from Regis University, Denver, Colorado and Post-Graduate studies at University of Denver (Law), University of Michigan (Economics) and University of Washington (Marketing). Darrell carries both CTS (Certified Technology Specialist) and LEED AP credentials. Darrell is a licensed pilot and certified PADI Dive Master. Darrell is married his high school sweetheart for more than thirty years and is the father of two sons.