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CAPEX Adventures: Unintended Consequences

*Before embarking on any event space renovations, learn from others' mistakes;
Consulting an expert before the project begins will keep you from hearing 'I told you so' in the future*

By Jeff Loether

There are four small words that no one likes to hear: "I told you so." But often that's what happens when hoteliers embark on an event-space renovation project without heeding the advice of an AudioVisual and Acoustical Services expert along the way. The following three scenarios are examples of lessons learned by hoteliers who opted to revamp their meeting rooms, ballrooms or banquet areas without prior consultation.

Scenario 1: Floored by Flooring

Carpet in the hotel lobby/pre-function/ballroom was dated and needed to be updated. Management considered changing it out to a hard surface, such as engineered wood, ceramic/porcelain tile or stone so that it looked more contemporary. The old carpeting and padding was removed and the new flooring was installed. Owners, management, staff and guests thought it looked terrific!

Enter the first event. "Sorry, what? What did you say? I'm not understanding you very well. Hey, what's that noise? Why is it so loud in here? I don't remember it being so loud in here when we did the site inspection."

Carpeting does three things with respect to sound: 1) It absorbs sound, no matter what its source. The room is just quieter, more intimate, and it feels safer and more relaxing; 2) It cushions impact energy from walking (hard soles, high heels) and from things that are dropped or carts rolled across the floor. While these activities on hard flooring would create sound, they are relatively silent on carpeted floors; 3) It prevents impact energy from being transmitted through the floor to spaces, such as guestrooms, below. Read "[Hard Lessons In Acoustics](#)" for more details.

Lesson Learned: When switching from carpeting to hard flooring, always opt for an acoustics-absorbing material; otherwise, sound energy—also known as noise—will increase significantly. The space will be louder overall, sound systems with microphones will feedback more often, social events will require guests to raise their voices when speaking to their colleagues (even when face-to-face), live music will border on being uncontrollable and become quite uncomfortable to guests. The room will be psycho-acoustically more acoustically unfriendly and threatening.

This higher level of sound will challenge doors and walls separating these spaces from adjacent spaces as well. Guests in meeting spaces seated near the entry doors will hear the loud noises from pre-function areas and have difficulty hearing or understanding the presenter in their room. Sound systems in meeting rooms will need to be turned up louder to try to overcome the higher levels of background noise. This creates even more “reverberant energy” (noise feedback) in the room. Ultimately, the high noise levels will cause an autonomic nervous system response in guests that releases adrenaline, which increases stress and emotional discomfort and disrupts digestion—not exactly the five-star guest experience you promoted to event/meeting planners.

A Sound Alternative: When replacing event space carpet, consult with an expert to determine the best option. Some floor surfaces are much noisier than others. For example, solid timber products can be much quieter than ceramic/porcelain tiles, stone, or engineered wood flooring. Although hard-surface flooring looks great, it may not sound great to guests. If the renovation calls for using an engineered hardwood floor, you do have options. Instead of “floating” or laying the engineered hardwood flooring loosely on top of a thick moisture barrier (which causes the floor to act as a drum head generating noise), it’s better to install the flooring with glue and bond it to the sub-surface so that it does not generate as much noise.

Impact noise can be transmitted to spaces below the floors. There are underlayment products that can be used under the flooring (engineered wood, timber, ceramic, or stone) that are resilient and reduce the impact noise. These products vary widely, and selecting the proper product requires analysis of the flooring and the slab structure itself. What works for poured concrete will not work for other structures, for example. Only a detailed analysis by an acoustical engineer provides the best solution.

Scenario 2: ‘Ceiling’ in Sound

The lay-in tile ceiling in a hotel’s largest meeting room looked pedestrian. The property wanted to upgrade this space to appear more sophisticated and high tech. Management toyed with three options: 1) paint the ceiling tiles; 2) remove the ceiling tiles leaving the grid and black-out the space above; 3) install drywall. Management actually ended up trying all three options. Here’s why:

First, the hotel tried to paint the ceiling tiles. Painting actually encapsulated the acoustical absorption qualities and rendered them reflective rather than absorptive. To be fair, the quality of Acoustical Ceiling Tile (ACT) ranges widely (from marginally absorptive to highly absorptive) right out of the box. This is a case of getting what you paid for. So, it would be good to know if the original ceiling tiles are good ones, as you would not want to paint over or throw away that investment if you can help it.

ACT is designed specifically to absorb sound that strikes the tile which reduces overall sound levels in the room. The tiles also create a barrier and block noises that originate from mechanical equipment above the ceiling, and from vibrations being heard below the ceiling. While the room looked different, it sounded different too. Although the room sounded bigger, it wasn’t a good thing; the acoustics left the room feeling like more of a warehouse or an aircraft hangar than a meeting space. The room sounded hollow. It looked like a ballroom, but it sounded quite different.

Next, the property removed the painted ACT and painted the ceiling behind the metal grid. Doing this created a more industrial, high-tech look, but it also removed any sound absorption possibility. Noises from the HVAC fans, VAV units, ducting, etc. radiated throughout the space and raised the level of background noise. Clamor generated in the event space from sound systems, people talking and applauding, sound from the servers and from eating activities built on top of the higher background noise levels because the sound absorption materials were missing.

Finally, after numerous event planner complaints, management installed drywall (more commonly known as a gypboard ceiling). By doing so, the property also eliminated the absorption surfaces of the ceiling. Painting the drywall/gypboard did provide some barrier from the noise from above the ceiling, however, sound was not being absorbed below the ceiling—leaving the meeting room loud and management not-so-proud about the third phase of this simple renovation.

Lesson Learned: Adding paint to tired surfaces is a great way to refresh a room or environment, however, when it comes to event space ceilings, it's critical not to seal up or clog the porous ceiling tiles designed to absorb sound.

If the property had consulted with an expert prior to embarking on this three-stage fiasco, management would have learned that they had three better options to choose from at the onset: 1) Use non-bridging paint; 2) Use acoustically-absorptive plaster; or 3) Add absorption materials elsewhere in the space (such as walls).

If the property elected to paint the ACT, they could have done so by using a product that didn't reduce sound absorption. Non-bridging paint does not clog the porosity of the tiles (tiny holes and crevasses) that enables it to absorb sound. Normal paint clogs those holes and seals the tiles; non-bridging paint does not. It has to be applied carefully, in compliance with the manufacturer's instructions—but it can be done. Another option would have been to change to a hard-cap ceiling by using acoustically-absorptive plaster. There are several manufacturers, and it is impossible to tell the difference between regular reflective drywall and these absorptive products. If this option was not preferred, the property simply could have added absorption materials elsewhere in the space, like on wall surfaces. This would compensate for the loss of absorption in the ceiling.

Scenario 3: Walls Echo Dissatisfaction

The fabric wallcovering in this hotel's banquet space was dingy, dated, faded and dirty. Management's solution was to clean up the walls by re-covering the existing material with light-colored vinyl; after all, it would be easier to clean in the future. Once the new vinyl was hung, management took a step back to admire the transformation.

"So how do you like (like) our (our) new (new) Ballroom (Ballroom)?" one manager asked the next. "Hey (hey). Where did that echo (echo) come from?"

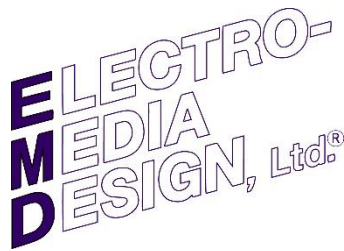
Hard wall surfaces reflect sound. Whether it's a two-person conversation or complete sound systems brought in by AV rental companies (including speakers-on-sticks, bands' and musicians' equipment, etc.), sound energy is streamed horizontally. When horizontal sound bounces off hard walls, it creates echoes. If the property had first consulted with an expert before making the spontaneous decision to refresh its hard surface walls with vinyl, management would have been able to stop sound and stress from increasing and the intelligibility of spoken words from decreasing.

Lesson Learned: Facilities can avoid echoing by simply using the in-house sound system as often as possible. Because ceiling speakers aim sound energy down into the audience, they do not generate echoes, and provide much better intelligibility than portable sound systems. While this seems like a simple fix, more than 50 percent of all events held in hotel ballrooms use some type of portable sound systems. If this is the case at your facility, then it's smart to treat the walls to be acoustically absorptive rather than making them acoustically reflective. There are many newer products on the market that provide acoustical absorption while not looking like fabric wrapped or stretched fabric panels. Some are very colorful while others are actually micro-perforated surfaces, including real wood of all species. These new design materials are beautiful, both in form and function.

If you don't want your walls to echo meeting planners' dissatisfaction, then it's best to heed this advice, otherwise you may wind up being like one California hotel that—at the insistence of a VIP customer—had to temporarily install acoustically absorptive blankets and panels around its ballroom for their special event.

About Jeff Loether

Jeff Loether is president and founder of ELECTRO-MEDIA DESIGN, Ltd., an AudioVisual systems design and Acoustical consultation group with expertise in audio, video, control, and related presentation, entertainment, and communications technologies. The practice also includes AudioVisual Operational and Management consulting to address the entire AV systems lifecycle. As independent consultants over the last 25 years, EMD has provided consulting services for more than 800 projects globally, including: hotels, conference and convention centers, spas and resorts, government facilities, corporate board rooms, theaters and auditoria, schools and electronic classrooms, training and meeting rooms, courtrooms, places of worship, restaurants and nightclubs, sports facilities and venues, and command and control centers.



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