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The ABCs of Green Acoustics

By Dave Barista, Managing Editor

For all the attention green buildings get these days, many fall woefully short of expectations when it comes to acoustical performance. Why?



In many cases, acoustical performance is an afterthought on green projects because some green building rating systems, such as LEED, do not include specific acoustical credits, says green acoustics specialist Jeffrey Fullerton, director of architectural acoustics with Cambridge, Mass.-based consulting firm Acentech Inc.

“Without a specific credit for acoustical performance within the LEED system, I think a lot of designers don't think about it,” says Fullerton. “They're thinking about so many other things, and the acoustics are not really considered.”

Another factor is the open-plan designs used in many green buildings, which tend to have fewer interior walls, higher ceilings, minimal finishes, and hard surfaces.

Getting the acoustics right in open-plan green workspaces doesn't have to be difficult for Building Teams, says Fullerton. It's as easy as ABC.

Absorb. In open-plan environments, the biggest source of sound reflection is the ceiling. “If you have a hard, sound-reflective ceiling, you're going to have privacy issues between open workspaces,” says Fullerton. “The key is to design a very effective sound-absorbing ceiling for these spaces.”

Building Teams can soften open-plan ceiling spaces using any number of green approaches, such as spray-applying recycled cellulose insulation to the underside of the roof deck or direct-applying acoustical tile to exposed ceiling surfaces. Suspended acoustic “clouds” may also do the trick, provided they meet the project's sustainable objectives. Green acoustic banners and baffles are also widely available.

For architects looking to re-create the look of drywall, Fullerton recommends a variety of smooth monolithic products, such as stretched fabric panels that can be mechanically attached to most wall or ceiling surfaces. “Drywall looks great, but it reflects a majority of the sound that strikes it,” says

Fullerton. “These new monolithic products are exciting because they look like drywall and have very good sound absorption. Architects can achieve both the visual and acoustical goals, while also meeting sustainable objectives.”

Block. Having a solid barrier between building occupants is also vital to good acoustical performance in open-plan spaces. Unfortunately, modern furniture systems do not follow this principle, says Fullerton.

“The trend in office workstations these days is for lightweight, open, and airy products, which promotes openness and collaboration, but is actually the opposite direction you want to go for a private or semi-private environment,” he says.

Ideally, workstations should incorporate fabric-wrapped panels that are five to six feet in height. Designers who are looking for more transparency and daylight may want to consider panels topped with glass or transparent acrylic partitions. “The glass still works for acoustics by extending that barrier higher,” says Fullerton.

Cover up. Absorbing and blocking sound will help improve acoustics in open-plan environments, but achieving superior acoustical performance that provides freedom from distraction requires what Fullerton calls “acoustic perfume,” namely a speech-privacy or sound-masking system.

“By introducing a comfortable level of broadband background noise into the space, people are not able to hear as clearly conversations nearby or the meeting a few tables away,” says Fullerton. He says sound-masking systems on the market today are much smaller than in the past—speakers are no larger than a typical sprinkler head—and their cost has come down considerably. Also, a majority of the newer systems can be installed by facility managers, rather than electrical contractors.

“Designing for high-performance acoustics requires some type of cover-up,” says Fullerton. “You may incorporate the first two principles and still have people who aren’t productive in the workspace because of lack of privacy.”

7 breakthrough acoustical products for green buildings

Building product manufacturers have recently flooded the market with acoustical products geared toward the green building market. Green acoustics guru Jeffrey Fullerton, director of architectural acoustics with Cambridge, Mass.-based consulting firm Acentech Inc., talks about seven of his favorites, including a rapidly renewable ceiling tile from Armstrong and spray-on acoustical finishes from International Cellulose. See all seven at: www.BDCnetwork.com/article/ca6643192.html