

Sound protection standards for secret spaces may be insufficient

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What's the best place to conduct a conversation about a confidential or even classified matter? Surprisingly, probably not a conference room designed in accordance with acoustical criteria approved by the Department of Defense (DOD).

While such "secret" rooms – intended to keep sensitive information out of the earshot of unauthorized listeners – might meet DOD standards, they offer less protection against snooping than is found in a luxury condo. So says Marlund Hale of Advanced Engineering Acoustics in Simi Valley, California, who evaluated the acoustic performance of several classified spaces.

Hale will present his results in a talk at the Fall 2013 meeting of the Acoustical Society of America, to be held December 2-6 in San Francisco, California.

In field studies, Hale examined a newly renovated "Sensitive Compartmented Information Facilities" (SCIF) conference room at a U.S. military installation and several classified spaces at a National Guard base. Although the facilities adhered to DOD acoustical design criteria and had passed acoustical standard field tests, they "failed to provide the desired secret-level acoustical performance," he noted.

In particular, while the individual components of the secret spaces – such as floors, walls, doors, windows, air ducts – were up to snuff in laboratory testing, they didn't make the grade when pieced together to

make a room. A common problem is that some contractors fail to adhere to specific design details during the room's construction. "Also," he noted, "acoustical door and frame systems frequently fail due to poorly functioning seals."

One remedy to the poor performance, Hale said, is a significant improvement in the design of acoustical door seals. In addition, he said, acoustical entry vestibules – the auditory equivalents of airlocks – "need to be mandatory."

However, Hale noted, even these strategies may be insufficient to protect against eavesdropping – because the DOD design criteria are simply not stringent enough. For example, DOD standards state that the partitions separating so-called "Group 4" classified areas from non-classified areas have a sound transmission class (STC) rating of 50. In California, 50 STC is the minimum rating for multi-family dwellings like apartments, condos, and townhomes, even those that are the least expensive. "In such residences, neighbors can hear adjacent neighbors," he said. In contrast, upscale and luxury multi-family dwellings typically can range from 55 to 65 STC – far better than DOD requires for secret facilities.

"The minimum acceptable performance standards for secret military facilities should be adequate to prevent secret information from being understood in adjacent non-classified spaces," Hale said. "It is interesting that DOD design standards only require sufficient acoustical isolation to prevent a casual passerby from understanding classified information, but do not need to be adequate to prevent a deliberate effort by someone to understand that information."

More information: Presentation 3aAAa7, "Upgrading secret military facilities—What is more important, acoustic design standards or acoustical performance?," will take place on Wednesday, Dec. 4, 2013, at 10:05 a.m. PST. The abstract describing this work can be found here:

asa2013.abstractcentral.com/planner.jsp

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