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BPA INTERNATIONAL

JLC's

Letters

Sound Advice

To the Editor:

The article "Details for Damping Household Noise" (10/99) was excellent, but I disagree on a few points. I would not hang drywall from resilient channels on a ceiling, even if they were on 16-inch centers. The channels are designed to disconnect the drywall from the framing, so the drywall will definitely sag. The article also states that airborne sound can only travel through air pathways, but sound is actually transmitted more efficiently through solid objects.

If you are trying to solve an existing sound problem, you should first determine if it is a high-frequency or low-frequency sound. High-frequency waves are measured in thousandths of an inch, have little energy, and can be effectively controlled by caulking and weatherstripping, as the author states. Low-frequency sound waves are long (a 35-hertz wave is about 35 feet long) and powerful, and can penetrate even a 12-inch concrete wall; a slamming door is like a giant subwoofer. These sound waves must be controlled by redirecting them, dissipating them into heavy absorptive material, or by "disconnecting" them (with an additional stud wall, as the author mentions).

Ductwork transmits sound very well, although the sound is usually broken up by turbulence while the fan is operating. As much as I hate flex-duct, a short piece between the trunk line and diffuser will dampen most sound, and helps stifle fan noise, too.

In new construction, the most cost-effective sound wall is 2x4 studs staggered on 2x6 plates, with fiberglass woven in between. In the most extreme cases, two separate walls must be built, slightly out of parallel with each other, and with dissimilar materials (1/2-inch drywall on one side and 5/8-inch on the other, for example). This will eliminate the "diaphragm effect." I highly recommend sound walls for furnace rooms, home theater rooms, and even bathrooms.

Bruce Busboom
Dewey, Ill.

Design Professionals

To the Editor:

I read with interest the article "Framing Layout Rules of Thumb" by Don Dunkley (10/99). As the director of the American Institute of Building Design (AIBD), I was concerned with the generalization that building designers create poor plans as opposed to architects.

AIBD is an organization of custom residential building designers and stock plan designers. The professional membership requirements for joining AIBD are strict. One must show sufficient experience, education, and referrals from within the building industry, as well as present three sets of plans for review. Certification is also available to professional members through the National Council of Building Designer Certification (NCBDC). Applicants for certification are required to pass a two-day exam consisting of nine sections ranging from ethics and administrative procedures to design problem solving. AIBD also

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has a professional liability insurance program available to our members.

The members of AIBD are designing homes that are not only aesthetically pleasing but also structurally sound and code-compliant. To check on the status of a building designer, call the AIBD national headquarters at 800/366-2423.

Bobbi Currie, Director
AIBD
Westport, Conn.

Don Dunkley responds: As I stated in my article, there are excellent building designers as well as poor ones. It was not my intention to imply that as a whole, building designers are inferior to architects. What I was attempting to say was that in an effort to keep costs down, some general contractors and their clients fail to spend the money needed for professionally drawn plans, whether by an architect or a well-trained professional designer. Consequently, these builders and clients get what they pay for. And that in turn affects the framing contractor, who has to deal with poorly executed plans.

Sealing Crawlspaces

To the Editor:

I'd like to add some comments to the discussion on crawlspace ventilation ("Crawlspace Ventilation Update," 8/99; *Letters*, 10/99). Crawlspace ventilation is indeed an important issue, especially here in South Carolina, where we build a higher percentage of crawlspace foundations than any other state, and where we have a warm, humid climate.

The "research" used to create current crawlspace ventilation codes was done in the late 1930s and early 1940s, and was really concerned with stopping attic moisture problems. Research since the late 1980s has shown there is no need to ventilate crawlspaces (this was incorporated into ASHRAE's latest standards). Also, the introduction of air conditioning since the 1940s has created some artificially cooler surfaces than houses were exposed to when the original (and still current) crawlspace ventilation codes were written.

Air contains moisture; warm air can hold more moisture than cold air. Relative humidity is a measure of the amount of moisture in the air relative to the maximum amount it can hold *at that temperature*. Therefore, relative humidity is temperature dependent.

Warming air about 20˚F allows it to hold about twice as much moisture. If we warm 70˚F/100% RH air to 90˚F, its RH will drop to about 50%. Conversely, if we cool 90˚F/50% RH air to 70˚F, its RH will increase to 100%.

Summer outside conditions around here are 90˚F/50% RH. Assuming a crawlspace temperature of 70˚F, ventilating with this air will make the crawlspace wetter, not dryer. (Conversely, ventilating with cold, dry winter air will dry the crawlspace.)

I have investigated many crawlspace situations involving sweating ducts and decaying floors. Extra vents had been added, but didn't help: The warm, moist outside air is entering the crawlspace and condensing on cool surfaces such as ducts and floors.

My recommended solution for most crawlspace moisture problems is to seal up the crawlspace and add an inexpensive portable dehumidifier. Run the dehumidifier full tilt to get the moisture problem under control, then turn it down to maintain an appropriate moisture level.

Craig DeWitt, P.E.
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