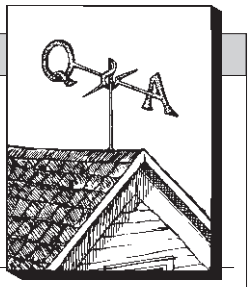
Quiet Party Walls



by Hank Spies

Q. *What is the most effective way to soundproof party walls in multi-family residences? I am interested in methods for both frame and concrete-block construction.*

A. The two basic principles are to build an airtight wall between the units and to isolate the wall surfaces from each other to reduce the transmission of structural vibration. There should be no penetrations, such as ductwork, electrical outlets, medicine cabinets, plumbing, etc. If outlets are needed, they should be surface-mounted. The joint between the wall and the floor should be sealed.

In a frame-wall system, the best construction is a double wall with completely separate plates and studs. There should be at least R-11 insulation in the wall. You can install sound-deadening board beneath the drywall on one or both sides, or mount the drywall to the studs with resilient channels to increase the sound rating of the wall even more. The ceiling, subfloor, and all framing members should be broken between units as well, to reduce structure-borne transmission.

In the case of concrete masonry, it is essential that the wall be painted (block sealer or two coats of cement-based paint) or plastered on both sides to seal the pores in the concrete. Standard-weight block is better than lightweight block. eight-inch block is better than 4-inch. Filling the cores makes little difference on a well-built wall but may help a poorly-built one. Furring one or both sides will also help, and will create a space for plumbing and wiring to be run without making holes in the block.

Sound control is a complicated subject. For those who need specific details and Sound Transmission Class ratings of various walls, ceiling, and floor constructions, we have a limited supply of reprints of the chapter on Sound Control (80 pages) from the book Construction: Principles, Materials and Methods, available for $3.00 per copy. Order from the Small Homes Council-Building Research Council, 1 East St. Mary's Road, Champaign, IL 61820. Make checks payable to the University of Illinois.

Retrofit Radiant Floors

Q. *Our customer wants to use radiant electric floor heating over an existing slab-on-grade foundation. Can the heating elements be put in lightweight concrete poured over the slab? Where should we insulate?*

A. The current recommendation is to cover the existing slab with 1-inch polystyrene board stock, then lay the cables over the insulation. The cables should be covered by about two inches of mass material. This could be lightweight concrete, tile, mortar, or any combination of these materials. Some form of tile is probably the best flooring, since it conducts the heat readily. If the floor is to be carpeted, no pad or a thin felted pad should be used, and a lightweight (25 to 30 ounces per yard) carpet with a synthetic or action back, not a jute or foam back.

Cathedral Sealing

Q. *Is rigid foam an acceptable insulation to use between the rafters of a cathedral ceiling? If so, what is the most effective way to seal the joint between the rafter and the foam insulation?*

A. Rigid foam is acceptable in a cathedral ceiling. A foam gun such as distributed by Hilti (and perhaps others) is a quick and easy way of sealing the joints. It will lay a bead of foam sealant as small as 1/4-inch, with minimum waste. With high permeability foams such as expanded polystyrene, polyethylene vapor retarder/air barrier should be installed across the bottom of the rafters.

Keeping Cedar Natural

Q. *How can the "new" look of western red cedar be preserved?*

A. There are a number of "natural" wood finishes on the market, but few will actually maintain the original color of the wood. Most people use cedar siding because they like its appearance as it weathers. The sun will bleach most woods, and mildew will discolor them. According to research conducted at the Texas Forest Products Laboratory, TWP finishes from AMTECO (185 Cass Ave., St. Louis, MO 63106) provide maximum mildew prevention while maintaining the original color of the wood. In any case, some effects of sun bleaching and mildew formation are almost inevitable. Several companies market an oxalic acid treatment which "brightens" weathered wood. A survey of clear finishes for wood sidings appears on page 43 of the June 1988 issue of JLC.

Cuts in P-T Lumber

Q. *Do the cross-cut and ripped surfaces of pressure-treated lumber need to be treated? If so, how?*

A. Generally, yes. However, if the piece was only 2x originally and the dye contained in the pressure-treatment chemical shows complete penetration, it should not be necessary. If there is a color variation, then the cut ends or ripped surfaces should be dipped in or brushed with copper napthanate, which is the only wood treatment chemical now permitted on the job without a special license. ■

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