



## Stopping Nail Pops

by Henry Spies

**Q.** A house we recently completed has a lot of nail popping—in about 30 places—in the drywall on the cathedral ceiling. Most of the popping has taken place near where the ceiling meets the walls. The cathedral ceiling is framed with 2x10 rafters with one-inch, foil-faced foam insulation between the rafters and the 1/2-inch drywall. The drywall was attached with screws, but I have reason to believe some of them were driven home with a hammer. What is causing the nail popping and how can I prevent it in the future?

**A.** The nail popping is caused by the same thing that always causes nail popping—wood shrinkage. I assume that you used 2 1/2-inch screws to give an inch penetration into the rafters. As the rafters dried, the point of the screw would remain in place and the wood would shrink along the screw about 1/16 inch. This is not normally a problem as long as nothing presses against the drywall to cause the screw to pop the taping compound.

However, the wall drywall is usually installed butted against the ceiling drywall. As the slight, lengthwise shrinkage of the studs causes the ceiling to drop slightly, the wall drywall, which does not shrink, presses tightly against the ceiling, forcing the ceiling drywall nails to pop.

A screw that was driven with a hammer would tend to force the wood fibers inward, and any tendency for the fibers to straighten themselves would also tend to force the screw outward. Driving drywall screws with anything but a screw gun with a positive clutch to provide proper head indentation invites problems.

What can be done to minimize the problems? First, use the driest lumber available. Second, drive the screws properly. A third possibility is to finish the top of the wall drywall with a vinyl trim piece such as USG P-1, which fits over the top edge of the panel and provides a control joint between the wall and the ceiling, eliminating or reducing the pressure applied to the ceiling finish by the wall drywall. The use of these moldings is discussed in the USG *Gypsum Construction Handbook*, which should be available from your drywall distributor.

## Matching Metals

**Q.** Do I need to use aluminum nails with aluminum flashing and copper nails with copper flashing to avoid corrosion of fasteners?

**A.** It is very advisable to use aluminum nails with aluminum flashing. Galvanized iron will corrode quickly. Galvanized nails must never be used with copper flashings. (Remember, copper and zinc are the two metals used in nearly every high-

school physics or chemistry class to make a battery.)

Stainless-steel nails are inert enough to be used with either copper or aluminum. Copper nails are fine for copper flashing, but they are harder to find than stainless steel.

## Testing Windows

**Q.** Can you explain the industry standards on testing for air infiltration and heat gain in windows? Who selects the windows and the sizes to be tested? Can manufacturers send the best of the bunch to be tested, then use that data to market their other windows?

**A.** Independent laboratories that are hired to test windows use standardized ASTM tests. But there are no real standards as to how windows are selected, since no one requires manufacturers to have their windows tested at all.

If test data were used in advertising and a complaint then filed, the Federal Trade Commission could probably require the manufacturer to prove that a random sampling of the windows met the advertised data. Since some of the final assembly on window units is done by a jobber or wholesaler, the field performance of a given window may not be under the control of the manufacturer at all. Whatever the case, you can be sure that the window units sent to the testing laboratory do not have a folded corner on the weatherstrip, incorrectly mounted hardware, or a gap in the bedding compound.

## Wood/Oil Furnaces

**Q.** I want to heat a 2,600-square-foot house near Albany, N.Y., with a wood-fired boiler with oil backup. I've located several wood-fired furnaces, but only one wood-fired boiler (Essex). Are others available, and are they reliable?

**A.** While my list is a little old and certainly not complete, wood-fired boilers were (and probably still are) manufactured by Riteway Mfg. Co., Weyers Cave, Va.; The Furnace Works, Watertown, S.D.; and Bell Industries, Seaforth, Ontario. Danish Tasso boilers were imported by Tekton Design Corp., Conway, Mass.

As for reliability, I have heard that, in dual-fuel units with one combustion chamber for both fuels, the creosote from the wood tends to clog the nozzle of the oil or gas burner. In these units, the backup fuel should be used at least once a day to help keep the nozzles clean. Units with separate combustion chambers should be as reliable as their single-fuel counterparts. ■

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