

Mysterious Stripes on Carpet

Q. *The homeowner living in a ranch house our company built five years ago is complaining of mysterious carpet staining, showing up as a stripe along the outside walls of some rooms. There do not appear to be any water leaks or problems with the gas appliances. The house is on a slab and has a gas-fired hot-air furnace. The homeowners do not burn any candles. What could be causing this problem?*

A. *Frank Vigil, senior building science specialist at Advanced Energy in Raleigh, N.C., responds:* Dusting, sooting, or ghosting — as these marks have all been referred to — is not uncommon. Markings on walls, carpeting, furnishings, even inside of appliances, are all too common in today's houses, possibly because we've done exactly what we set out to do years ago: build the houses tighter. In tight homes — especially tight homes with insufficient ventilation — particulate has more opportunity to deposit, instead of being flushed away by regular air changes.

The dusting or staining that your homeowner is experiencing requires two things in order to occur: There must be a source for the material, and there must be a driving force to cause the material to deposit. A laboratory test of the material can be helpful, at least to narrow the possible sources. Is the staining gray, black, brown, or yellow? Does it appear on places other than the carpet-to-wall junctions? You mention that while the homeowners don't burn candles (so they claim), they do have a gas furnace. Has the furnace been tested for draft under the worst-case scenario (with exhaust fans, clothes dryer, and central vacuum cleaner operating)? Is there a woodstove or fireplace (gas or wood)? Investigations over the years have found all of these things can be culprits for staining.

The driving force for stains along the carpet-to-wall junction are typically pressures caused by mechanical fans and/or stack effect (heat rising). Air will always seek the path of least resistance. If the house is pressurized, escaping air will often go up the wall cavity to the attic. The carpet serves as a filter, scrubbing the air of some of the contaminants. Over time, this is what you see on the carpet. On the other hand, negative pressures in the house could be causing attic air to filter down the walls, with the carpet again serving as a filter.

Pressure mapping of the house by a qualified technician can easily pinpoint the pressure dynamics the house experiences while fans are operating. From there, you can begin to trace likely sources for the stain.

Water Treatment for Acidic Water

Q. *In the April 2000 issue of JLC (Letters), Rex Cauldwell recommended treating acidic water that eats copper pipe. Our water has a pH of 6.2 and definitely eats copper. What kind of water treatment equipment do I need?*

A. *Master plumber Rex Cauldwell responds:* With a pH of 6.2, your water looks at copper and says yum, yum. You need an acid neutralizer, which passes the water through a container with neutralizing media. Look for an acid neutralizer with a capacity of at least 1 cubic foot of media. Acid neutralizers are available from many plumbing supply houses or from Sears. Plumbing supply houses can test your water and help spec the unit for you.

Acid neutralizers are either passive or active. A passive model, sometimes called an upflow, just sits there as water flows through it. Debris, iron, and other junk will collect in the

media. In a passive model, the media tend to turn into a concrete-like mass after a while.

An active model backwashes itself to fluff up the bed and to get rid of the debris, which is flushed to a drain. The disadvantage of an active unit is that the backwash cycle consumes a couple of hundred gallons of water per week.

An acid neutralizer is installed in series with the incoming main water line and will require a 120-volt power supply.

Cold Roof Retrofit

Q. *A homeowner in central Pennsylvania has asked me to repair a roof with a history of ice-dam problems. The roof is over a cathedral ceiling that has only 6 inches of fiberglass insulation, with no space for venting above the insulation. Can you provide details for a cold roof retrofit above the existing sheathing?*

A. *Corresponding Editor Henri de Marne responds:* In addition to having ice-dam problems, this roof is poorly insulated and may also have problems with condensation within the unvented cathedral ceiling. Building a cold roof will probably solve the ice-dam problem, but it will neither improve the insulation level nor address the issue of possible condensation.

You should first remove some of the sheathing at the eaves to inspect the insulated space and check for possible water damage caused by the ice dams. Then remove some of the sheathing near the ridge to check for possible damage caused by condensation. Wet insulation should be replaced and wet wood allowed to dry, to prevent further damage and carpenter ant infestation.

If you want to build a cold roof without improving the insulation, first strip the roof down to the existing sheathing. Then install 2x2 sleep-

ers from eaves to ridge, over the existing roof. The sleepers should be nailed or screwed over the existing rafters. They should extend approximately 3 inches beyond the existing fascia to create a new soffit for the installation of standard metal venting strips. Fasten a new fascia to the tails of the 2x2 strapping.

Apply new sheathing over the strapping, followed by #15 asphalt felt and roof shingles. An externally baffled ridge vent, such as ShingleVent II, should be installed at the ridge.

A better job would include improving the energy efficiency of the roof, which would also reduce the chance of snow melting. This could be done by adding a layer of 1-inch-thick extruded polystyrene (Styrofoam or Foamular) over the existing sheathing prior to the installation of the sleepers. The rigid foam insulation will also raise the temperature of the lowest level of sheathing, greatly reducing the possibility of

condensation problems in the cathedral ceiling.

Painting Interior Bricks

Q. *I need to paint an interior brick wall in a bedroom, and I'm not sure what type of paint to use. Because the brick wall includes the back of a fireplace, I'm worried that the heat from the fireplace might affect the selection or durability of the paint.*

A. *Painter Dan Greenough, a member of PaintCraft Associates, a San Francisco Bay-area guild of professional finishers, responds:* If the bedroom can be occupied comfortably while the fireplace is in use, the bricks are probably not hot enough to cause durability or color problems with any high-quality paint.

Before painting the brick, inspect the surface for staining that may be the result of water penetration from the outside. If there is a sign of a white crystalline powder (efflorescence) on the surface of the brick, the underlying

moisture will cause the paint to fail unless you repair the exterior first. Be sure to clean the surface to provide a sound substrate for good paint adhesion.

The brick should be primed with a good-quality latex stain-killing primer, such as BIN 1-2-3. If the surface is porous and pitted, one or more coats of latex block filler can be applied as the prime coat.

Once the primer is dry, you can paint with two coats of any type of interior paint finish. Good-quality latex paints are easy to use and to clean up. They also dry quickly, so you can put the room back in service without delay.

GOT A QUESTION? Send it to On the House, JLC, 186 Allen Brook Ln., Williston, VT 05495; or e-mail to jlc@bginet.com.

