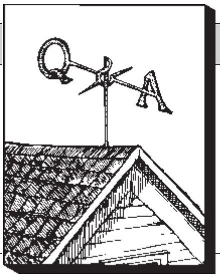

Drying Wet Walls

by Henry Spies

Q. *We are building a double-wall, superinsulated home in the Pocono Mountain region. The house was closed in last spring but has no heat on yet (November). We were about to install the polyethylene vapor barrier on the first-floor walls when we discovered beads of water on the back of the 1/4-inch Thermoply sheathing. Water had also pooled on the top of the bottom plate.*

We have pulled back the fiberglass to dry the insulation and sheathing. We are heating the house with portable kerosene heaters and it is drying up. Should we drill holes in the sheathing or in the top plates to allow the wall to dry out? Do you recommend a ceiling vapor barrier? We may leave it out to give the household moisture a chance to escape.—B.G., Stroudsburg, Pa.

A. This is an example of a poor construction sequence. The vapor retarder (barrier) should have been installed as soon as the insulation was in. The moisture in the house is now condensing on the coldest available surface, the sheathing. I am surprised that the sheathing is drying, since the house is being heated with unvented kerosene heaters. For every gallon of kerosene burned, more than a gallon of water vapor is released into the air in the building. This usually *causes* moisture problems.

The building should be heated with vented heaters and ventilated to remove the moisture. It should not be necessary to drill the top plate (not the sheathing) to release moisture; if you do, the holes should be covered with Tyvek to eliminate air movement within the wall. We certainly recommend that a ceiling vapor retarder be installed. It may be necessary to ventilate the house somewhat during the first winter to eliminate the moisture coming from the building materials.

Midriff Bulge

Q. *I'm working on an 80-year-old, balloon-framed, three-family house that has a mid-life bulge. The first-floor joists have pulled about one inch from the 6x7-inch center beam and sill beams in the basement. A few joists have separated completely from the beam. The total separation is about 2 1/2 inches. The joists drop about 1 1/2 inches toward the center beam.*

How can we correct this problem, or at least stop it from getting worse? I was considering using a number of come-alongs and adding joist hangers, but I am worried about forcing an old building. —E.G., Lynn, Mass.

A. Your problem is not uncommon. About the only thing you can do at this stage is to add joist hangers or a ledger strip to the beams to provide support for the floor joists. You may want to try jacking the center beam slightly if it can be done without cracking too much plaster. You will not be able to pull the house back together, because much of the problem is wood that has crept (deformed under stress) over the life of the structure.

To keep the problem from getting worse, I would suggest eye bolts through the sill beams, connected by a steel cable and turnbuckle, at the quarter points of the house. The cable can run through an oversized hole in the center beam. The turnbuckle should be tightened enough to tension the cable but not to pull the structure together again.

You may find that the center beam floats up and down with the changes of season or moisture content of the soil. It is not unusual for the center posts to be heavily loaded at some time of the year and almost falling out at others. Part of the sag is probably due to deflection of the beam and joists, and part to settling of the footings under the center beam, which were often undersized in old structures.

Stressed-Skin Selections

Q. *In choosing a stressed-skin panel, which is better: a polyurethane core or a beadboard core? Which is more durable, less likely to delaminate, and safer in case of fire? And are some types of panel construction stronger than others? —B.M., Burlington, Vt.*

A. Given a choice, I would select a polyurethane core. It is a closed-cell foam and is less likely to absorb moisture in any form than beadboard. It is also self-adhesive. A separate adhesive is necessary to bond the skins to a beadboard core. That is one more product and process that is subject to failure. The chemical composition of the individual foams determines the flame spread and smoke production. There are modified versions of both products that are fairly good. If the fire penetrates the skin to reach the core, the building is structurally unsound and it may be too late to escape. The choice of the skin material will have the most bearing on the fire safety of the panel.

The strength of the panels varies with the choice of both skin and core materials, as well as the bond between the two. Some certainly are much stronger than others. The real question is: Is it strong enough for the purpose of the structure? ■

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