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Through the Roof

By Charles Wardell

Q: We're remodeling a home with severe mold and mildew problems. The source seems to be the crawl space. It has a dirt floor, and the soil has a chronically high moisture content. Although the crawl space has a ground cover, it's still quite moist, and venting only seems to bring more humid air into the space. What should we do? R.S., Denver

A: Venting a crawl space with humid outside air during the summer can lead to the wetting, rather than drying, of crawl space assemblies. Crawl space surfaces will be cooler than the outside air, so moisture will condense on them.

One solution, devised by Joe Lstiburek of Building Science Corp., Westford, Mass., is to ventilate the crawl space with conditioned air from the home.

Lstiburek installs a vent stack from the crawl space through the roof. A standard inline fan in the attic -- sized to meet the ventilation requirements of the home -- runs continuously, exhausting the crawl space air and putting the crawl space under negative pressure.

As with any ventilation system, you'll need an adequate source of make-up air to keep pressure created by the fan from sucking carbon monoxide out of the furnace.

The make-up air should enter the house in the living space, then pass into the crawl space through the "leaky" (non-air-sealed) floor assembly. In effect, the system converts the crawl space to a conditioned space.

Lstiburek recommends covering the crawl space floor with a polyethylene vapor diffusion retarder that extends a foot or so up the walls. Seal all joints with duct tape or housewrap tape and fasten the ends securely in place. (Lstiburek says contractors he has worked with call the result "the diaper.")

The system has an added bonus. As a rule, heating and cooling ducts are best kept within the conditioned space, which in most homes means keeping them out of the crawl space. With this system, because the crawl space becomes part of the conditioned space, you can safely route your ducts through it.

Lstiburek has used the system to solve moisture problems in schools in New Jersey and homes in Colorado and Massachusetts. A full description is featured in Lstiburek's new 330-page *Builder's Guide, Mixed Climate* (\$40). To order a copy, contact [Building Science Corp.](#), 70 Main St., Westford, Mass. 01886; (508) 589-5100.