Heavy-Duty Dehumidifiers

by Clayton DeKorne

Excess moisture from drying concrete, lumber, drywall mud, and paint can release as much as a ton of water into a house during the first heating season. This usually shows up as condensation on windows and skylights, but it can also accelerate other problems, such as mildew growth or rot, if other moisture sources exist or if the house is poorly ventilated.

In addition, drywall mud can take forever to dry during a humid spell in the summer, or as temperatures drop in the fall, delaying schedules. If the finish flooring and trim is on site while drywall mud dries or a basement slab cures, the wood will take on moisture. This can lead to open miters and cracks between floorboards in what looked like a perfect installation when you left the job.

The solution to such problems is to begin drying out the house as soon as it is enclosed. Fans to circulate air in warm weather and heaters to warm the space in cool weather are commonly used, but these won't do much to drive moisture out of building materials. The best solution is a dehumidifier.

Large-Capacity Models

Several companies, including Whirlpool, White-Westinghouse, Heat Controller (makers of *Comfort Aire*), and EBCO (makers of *Oasis*) manufacture large-capacity dehumidifiers. Models from all these manufacturers are available from Grainger (800/323-0620).

Dehumidifiers circulate air over coils that are filled with a compressed refrigerant. Under pressure, the temperature of the refrigerant drops so the coils are cold. As moist air hits the cold coils, the moisture condenses and falls into a collecting basin. The dehumidifier automatically shuts off as the basin becomes full so it won't overflow. However, some dehumidifiers come with an optional hose connector. This feature allows you to attach a hose that empties the condensate into a sink or floor drain (see photo). This means that the dehumidifier will run continuously overnight, allowing you to pull out as much moisture as possible while the job is underway.

Speedy dryout of new houses and additions will require a model that can pull at least 35 to 40 pints of moisture out of the air per day. The most powerful models pull up to 50 pints per day. These capacity ratings are based on indoor air conditions of 60% relative humidity at 80°F. At lower temperatures or humidity levels, a dehumidifier will pull less.

At temperatures below 65°F, the coils ice up. Some models have a "frost control," which shuts the compressor off, but continues to circulate room temperature air over the coils until the ice melts. Then the compressor kicks back on and starts dehumidifying again.

However, job-site temperatures are often much colder than this. EBCO makes a low-temperature model (model OD 3800 HG) that will dehumidify down to 40°F. This works by reversing the flow of refrigerant in the coils, so that hot refrigerant melts the iced coils much faster than room temperature air. A note of caution in cold weather: Use electric heaters for temporary heat. Water vapor is one of the products of combustion, so a kerosene-burning salamander or an LP-gas pot heater can actually raise indoor moisture levels.

Large-capacity dehumidifiers cost between $250 and $400. This may sound steep for a piece of equipment you thought you didn't need. But depending on the climate where you build, there may be ample cause to justify the expense. ■

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A large-capacity dehumidifier speeds the drying of a house before hardwood flooring and trim are installed. A contractor retrofit this Comfort Aire model with handles and casters to make it easier to move on and off site, and installed a furnace filter over the intake on back for more efficient operation on dusty sites.