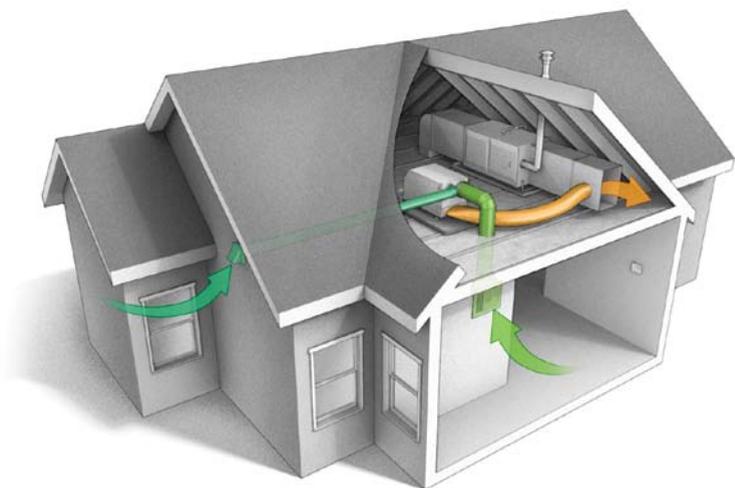


Dehumidifiers

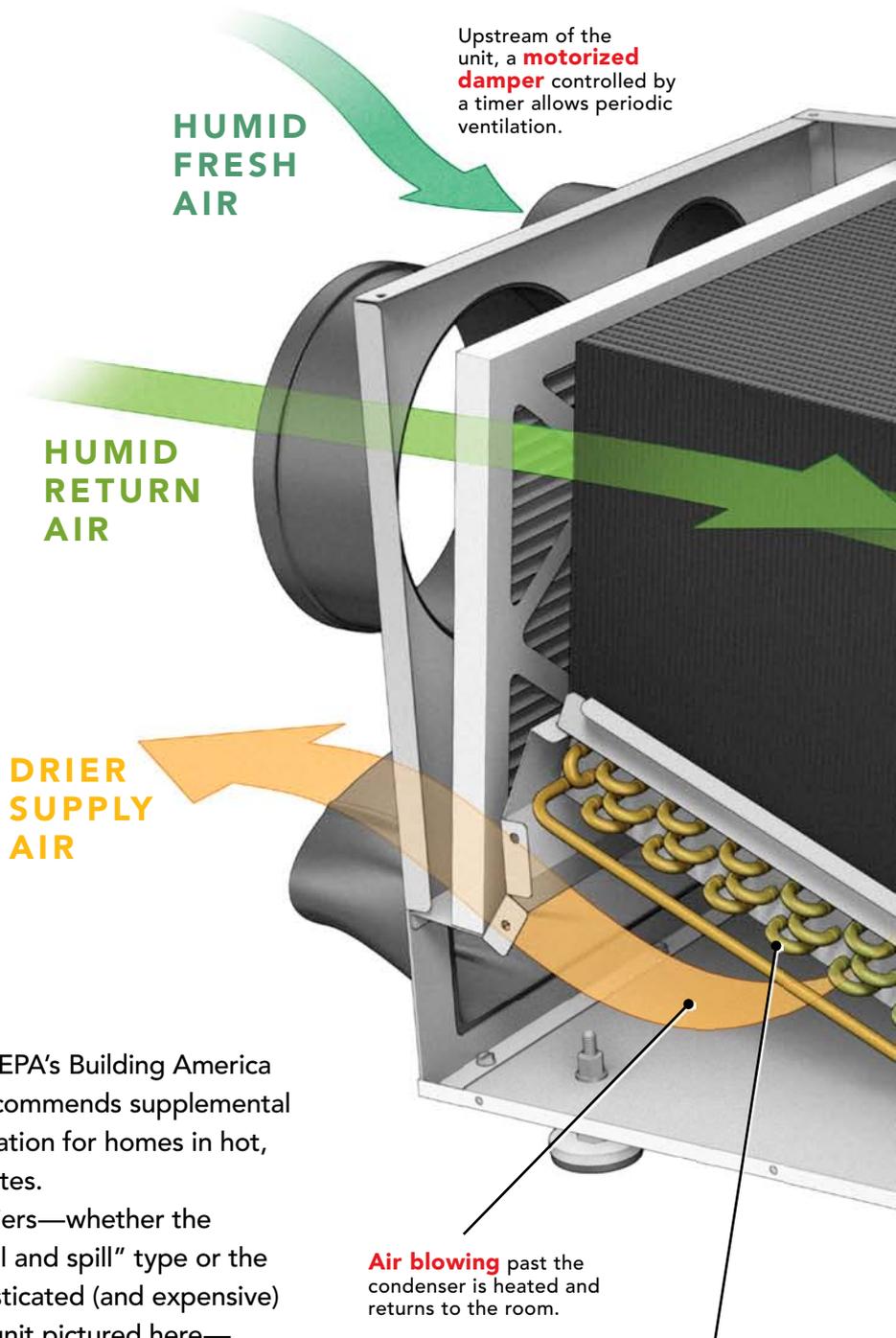


When humidity builds up in a house, it does more than make us uncomfortable. It can encourage the growth of organisms detrimental to our health, and over time, it can damage the structure and furnishings of our home. Controlling indoor humidity has become trickier as we've gotten better at building tight, energy-efficient houses. Without sufficient ventilation, indoor humidity produced by human activity (showering, cooking, perspiring, and even breathing) can build to unhealthy levels. In the humid South, houses that are well sealed and well insulated require less air-conditioning; that's good for saving energy but bad for indoor-air quality, because air-conditioning helps control humidity. In part for this

reason, the EPA's Building America program recommends supplemental dehumidification for homes in hot, humid climates.

Dehumidifiers—whether the portable “fill and spill” type or the more sophisticated (and expensive) integrated unit pictured here—extract moisture from the air using the same principles a refrigerator or air conditioner uses to cool the air. Here's how they work.

Debra Judge Silber is managing editor.



Upstream of the unit, a **motorized damper** controlled by a timer allows periodic ventilation.

HUMID FRESH AIR

HUMID RETURN AIR

DRIER SUPPLY AIR

Air blowing past the condenser is heated and returns to the room.

In the **condenser coils**, the refrigerant gas is cooled and condenses back to a liquid, giving up its heat to the air leaving the unit.

WATER AND AIR

Through evaporation and condensation, water is continually moving in and out of the air. When water vapor in the air comes into contact with a cold surface, its molecules slow, causing the vapor to condense into a liquid. That phase change is central to how a dehumidifier takes water from the air. The unit's refrigerant cycle uses similar physics: It releases heat as it condenses and absorbs heat as it evaporates. The drawing below follows the interaction of air and refrigerant as they pass through the unit.

