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Getting the wet cut

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By Alex Féthière

Photo in the print edition: The working principles of a desiccant dehumidifier in a sketch by Harstine Island artist Kathy Ross. (Courtesy of kathyross3d.com)

One hundred percent humidity is the closest you can get to Atlantis without drowning. The air is dense with moisture and heavy to breathe — more so when you have to warm it up from the low 30s. Absorbent fabrics like cotton wick microdroplets from the air into their weave, becoming heavy and growing mold. Raw wood drinks from the air-bog and molds toward a slow rot.

The South Sound winter is hard on inanimate objects. If you have a garage, shed or RV, you've probably noticed the aggressive infiltration of moisture into materials that can't dry out for up to six months. If you're building a homestead or living in an RV, you've felt the permanent dew.

Drying anything on land is expensive, impractical, time-consuming or some prohibitive combination of the three. After doing some reading I found an interior solution that is neither expensive nor difficult — and that lowered the relative humidity in my tiny house from 95% to 55%.

Compressor dehumidifiers are a staple of Northeastern and Midwestern U.S. life. Growing up I saw them used in basements during moist hot summers. They worked well because the condenser coils pulled hot wet air over cold, dry coils, then wicked the condensation into a reservoir or out a tube to ground level.

They're hobbled on the Olympic Peninsula. Cold wet winters cause the condenser coils to freeze as the compressor pumps refrigerant through them, so that at ambient temps below 55 degrees the machines must defrost their coils to keep dehumidifying. Our 30s to 40s winters mean the machines are usually defrosting.

Talking to friends about desiccant dehumidifiers ("d-dehumidifiers"), I found some folks stopped listening at "desiccant." They were thinking of DampRid or something like it: plastic colanders of disposable desiccant over a reservoir that the desiccant would weep into until it lost its ability to absorb atmospheric humidity.

D-dehumidifiers use various renewable desiccant media: zeolite, lithium chloride, even the silica we see in DampRid. Rather than cooling the wet air on refrigerant coils, the media, stored in a rotating disc, hygroscopically (taking up water without dissolving in it) absorbs moisture from circulated air. Then the media is heated and the warmed, dryer air is exhausted, while the wetter warm "regeneration"

air is cycled over the intake's condenser coils where it collides with incoming cold wet air, causing more condensation to trickle down into the reservoir.

It's a self-perpetuating feedback loop like permaculturists love, though incarnated in nonrenewable manufactured technologies. The mechanical and chemical principles are simple enough that someday we may dream of d-dehumidifiers made of terracotta, cedar bark and various woods smoldered by burning conks, the desiccant rotor turned by the rodents that also abound in our forests. (Probably not.)

D-dehumidifier technology seems to have been developed by Swedish company Munters in the '50s, but used mostly in industrial and commercial settings that lack the HVAC systems of homes. So if you're not heating the space but need it dry, this is the best way to go.

The outbuildings of Mason County aren't as fancy as Swedish factories, but they contain important stuff that lesser-known companies are now offering to protect. Meaco (a U.K. entity), EcoAir (a Dutch entity), and Ivation (a U.S. entity) all make d-dehumidifiers in prices ranging from \$250 to \$1,200. Whether you're drying a cold tool shed or a chilly ship's hold, there's a machine scaled for you.

I've used Meaco and Ivation in an uninsulated, unheated tiny house. Either quickly reduced 90% humidity to 55% in a few hours, then maintained it automatically when traffic brought in more wet cold air. They dried wet work gloves and clothes. And it turns out space heaters work better when heating dryer air; of course they're wasting less energy on water.

Both devices have reservoirs or continual drainage tubes that need gravity feeding — no pump. Both have louvers that move gently to distribute dry air, and settings that continually dehumidify, for drying laundry, or stop at preset relative humidities. The Meaco's louver broke on the second use though, and the Ivation's louver has more settings (45°, 90°, and 135° arcs) with a better user interface. We'll see which breaks first.

■ *Alex Féthière has lived on Harstine Island long enough to forget New York City, where he built community gardens and double-dug his suburban sod into a victory garden. He can be reached at onlandist@gmail.com.*