



Use the Right Tool for the Job

By Kevin Fisher

Have you ever had to hammer in a nail with a wrench? Or had to pry open a paint can lid with a hammer? It can be done; it's just a lot tougher. It's a cliché, sure, but still true. A job is most easily done with the correct tool.

Drying tools are no different. There's a huge variety of drying tools available. There's a huge variety of drying problems that occur each day in the field. But what tool would be best for each different drying problem? And how many times have you seen a technician trying to dry a hardwood floor with a conventional refrigerant dehumidifier? It's the wrong tool for the job.



Problem #1: Drying the inside of long walls

Situation: Water came from above or penetrated very deep into a structure, including the interior of a 100' wall. Fiberglass insulation needs to be dried in place. The wall is covered with vinyl wall paper.

Best tool: Inter-air drying system used in tandem with low grain refrigerants (LGRs) or desiccants. Carefully pull off the baseboards and place one or two injectors in each cavity. Blow the dehumidifier into the intake of the inter-air dryer. This gives good thirsty airflow to each cavity and will result in excellent drying.

Also try: Carpet dryers rigged with wall-drying attachments. This won't be as effective, but will eventually work.

Get the demolition tools warmed up if: you're trying to dry the wall from the outside or use low pressure axial fans -- you're not going to get this wall dry. This is a case where lots of high pressure airflow is needed inside the wall.

Helpful tips: To prove the wall is actually drying, use multiple monitoring techniques, including insulation probes at the bottom of the wall, non-invasive meters at various heights in the wall, and penetrating meters along the bottom plate checking for progress.



Problem #2: Crawlspace drying

Situation: A crawlspace is wet because of a water loss that occurred above. The vapor barrier and dirt have mixed into a muddy mess. There is about three feet of access space.

Best tool: Heat and air exchange drying. Use an indirect fired furnace positively pressurizing the crawlspace with hot outside air. ALWAYS use in tandem with an airmover blowing out of the crawlspace. Overall, the crawlspace should be on negative pressure. This is easy to achieve by making sure the airmover is evacuating more CFM than the furnace is blowing in.

Also try: Ducting the output from low grain refrigerant dehumidifiers into the crawlspace. Because most LGRs are a little too tall to fit in a crawlspace, consider ducting them in from the main floor of the structure. You could open an HVAC floor register or use a dryer vent to gain access. Alternatively, it is possible to place an LGR outside and duct it through the vent access. (Be sure to secure your dehumidifier and keep rain out of it!) Either way, don't forget to also use an airmover to keep the crawlspace negatively pressurized.

Get the mold remediation gear ready if: you do nothing with the crawlspace because you forgot that water goes down. Prepare for major secondary damage if you use airmovers alone with no air exchange.

Helpful tips: Heated air may not have lower grains per pound (GPP) than the outside air, but it does have low RH and good energy for drying. I've found it to be superior in drying power (in this situation) to LGR or desiccant dehumidifiers. I have rarely seen desiccant dehumidifiers used effectively in these wet conditions – usually because of poor set up or poor drying conditions.

The airmover blowing out of a crawlspace during drying is a “non-negotiable” piece of equipment. This negative pressure ensures that there will be no cross-contamination of the crawlspace (nasty!) air into the living areas above.

You can also measure the GPP of the air coming out of this negative pressure airmover. It should be higher than the GPP of the air going into the crawlspace. This proves that water is being removed by the drying system.



Problem #3: Hardwood floor drying

Situation: The entire first floor of a home is a rare hardwood over plywood. Half of the flooring is affected by category I water and is cupped. The customer wants the hardwood saved.

Best tool: Push-pull hardwood drying. Push air under the floor using high pressure airmovers and manifolds while simultaneously pulling air from the floor using hardwood floor drying mats connected to an inter-air dryer set on negative pressure. Use in tandem with LGR or desiccant dehumidifiers in the area, or even better, ducted into the high pressure airmovers.

Also try: If you don't have high pressure airmovers, manifolds, and mat systems, the old fashioned way of drying hardwood still works. Tent the floor with plastic and duct in a desiccant dehumidifier. This method is slower, but will eventually work.

Drying the Godzilla way: If you're interested in showing off a little and drying the floor ultra fast, consider doing all of these techniques: push-pull drying used together with tenting and desiccant dehumidification.

Dust off the long crowbar if you can't do any of the above. I've seen restorers try to dry hardwood by blowing airmovers across the surface while using conventional refrigerants in the area. This is completely useless. The cupping will still be present when the mold starts to come up in the seams of the floor.

Helpful tips: Be sure that all layers of the floor are dry before pulling off the job. This can be done by using a non-invasive meter which reads at least $\frac{3}{4}$ " deep, or by using a hammer probe from below. The least favored (but sometimes necessary) method of monitoring the hardwood is to make holes in the surface with a hammer probe. Either way, make sure that the subfloor is also dry at the end of the job.

It's possible to verify that mat systems and tent systems are effectively working by measuring the GPP of the air above the floor and the GPP of the air coming out of the inter-air dryer. If the air coming out of the inter-air dryer has a higher GPP, the system is working. When tenting, the air coming out of the exhaust of the tent should read a higher GPP than what went in.

Conclusion

Most jobs that restorers run into on a daily basis can be handled with the basic tools of the trade. Airmovers, dehumidifiers, and extractors do most of the heavy lifting. When you run into a more difficult situation, be sure to use the right tool for the job.

