

Using Heat Effectively to Speed Up Evaporation

Using heat to assist with drying has long been known to be a valuable tool, but unfortunately many of the heat delivery systems were expensive, too much labor to setup and take down, potentially dangerous because high temperatures could cause collateral damage if not controlled, and generally the equipment not being used correctly by restorers as a whole. That is why Accuserve has been slow to endorse heat drying as a viable option when drying structures and contents. Too many times we saw heat drying units being used to just heat up the air because it was cold in the home with the heated air flow not directed at the wet materials. Too many restorers were using heat drying units as just an expensive space heater. Everyone agrees that providing more energy in the form of heat to the wet material will cause the moisture to evaporate from the material more quickly.

Accuserve has actually tested different heat drying systems in our flood houses, like Phoenix Firebird, the Eliminator, Water Out, DBK Drymatic and E-TES Smart Dry System. I co-authored, with Dr. Dan Bernazzani, an article in R&R magazine May of 2013 - <http://www.randrmagonline.com/articles/85649-advancing-the-science-of-structural-drying> about our test of the E-TES Smart Dry System. Heat does work and all the heat drying systems we tested work, but the

problem is some work better than others in certain situations and many restorers don't use the heat drying system as prescribed by the manufacturer, so it not as effective as it could be.

See some tips below on heat drying:

- 1 Generally, only used in class 4 situations, unless the restorer can prove that there will be shorter drying times and overall lower costs than conventional refrigerant or desiccant dehumidifier drying.
- 2 Heat drying works best if tented so that the directed heat flow is focused on the wet materials with constant circulation of hot, dry air. Focus your drying on the smallest area possible!
- 3 Always keep ambient air temperatures below 100 degrees F.
- 4 Always keep wet surface material temperatures below 105 degrees F.
- 5 Set insulated containment (Squared-edge foam board rated R-10 to R-13 works well), if possible, to keep the heat from the unaffected areas.

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- 6 The restorer should be able to provide daily wet surface temperature readings, as well as Change to “Evaporation Potential or Vapor Pressure Differential readings to show the heat drying is working properly and won’t damage materials. Provide photos of the IR thermometer with a description of the material and location being measured.
- 7 Heat drying should speed up the drying process by raising the vapor pressure of the wet material, thus speeding up evaporation, so drying times should be shorter than normal. The exception may be in cases where we have bound water trapped in wood framing. In those cases, be sure to tent over the wet area and focus the most heat and dry air on the wettest spot for 24 hours to see if you can get the water to move to the surface to evaporate. Re-evaluate drying progress every 24 hours. Take photos of your MC & IR temp readings!
- 8 If using heat to help dry hardwood floors, try heating the wood subfloor from below instead of the top to decrease the risk of cracking planks.
- 9 Many times a simple UL rated small space heater is all that is needed to raise the ambient temperatures enough so that the dehumidifier exhaust actually becomes our heater (need 85-99 degrees F ambient air temperatures in the affected areas).
- 10 Portable heating units, like E-TES, should NOT be used as a replacement for home HVAC units. There are used to speed up the evaporation/drying process and value must be provided in justify their use.

Happy Drying! Ed

MEET ED

Instructor Ed Jones has over 30 years of experience in the industry, has the title of Master Water Restorer, is an Institute of Inspection Cleaning and Restoration Certification (IICRC) -approved instructor, and has served on the S500-2021 consensus body committee to develop the most recent standard.

