

Is it Dry?

By Kevin Fisher

How can a water damage restoration contractor know that a restoration is complete? The well trained restorer knows that a project is complete when the customers are satisfied, the structure and contents are clean, and odors are normal, and the affected materials are *dry*. A vital question, therefore, is "What does *dry* mean?"

A common definition for *dry* is *free from moisture*. It is inappropriate for restorative drying contractors to use the term: "dry", because a piece of wood that is *free from moisture* is frequently split and damaged due to shrinkage. Instead of saying our projects are *dry*, in our industry we use the term: *dry standard* or *pre-loss* or *equilibrium moisture content*. All three of these terms have the same meaning: *the moisture content of unaffected materials in a normal climate*. The goal of our drying strategy is to reach a dry standard for all affected materials.

According to the IICRC S500 (Reference Guide p.35) *materials can be considered dry only when they meet the pre-determined drying goals*. In practice, this means that one of the first steps in a water damage restoration is determining the drying goal. When our drying efforts are completed, it's not enough just to have reached the drying goal. It is *highly recommended* that throughout the restoration efforts technicians document the readings from their meters, and document that the drying goal has been reached. (IICRC S500 Reference Guide p.34)

Why Do I Care If I've Reached Dry Standard?

You don't have to work very long in this industry before you hear about the horrors of secondary damage, microbial growth and lawsuits. A structure left wet is a recipe for disaster. Both the IICRC Mold Remediation and Water Damage Standards are specific about making sure the structure is sufficiently dry.

The IICRC S520 states: *Correct the moisture problem to prevent recontamination*. (p.54) In other words, if you do not correct the moisture problem, you *will* (natural law) have the microbial condition return. As was mentioned earlier, the S500 is very clear that a water damage restoration is NOT complete unless all affected materials are returned to a close approximation of dry standard.

How Can I Determine Dry Standard?

There are two ways to determine dry standard for the materials in the environment.

1. Take meter readings of similar materials in the structure that are unaffected, and
2. Take meter readings of similar materials in other structures that are unaffected.

Documentation of the dry standard for each of the affected materials should be included in every job file.

The most common method of determining dry standard is *taking moisture content readings from known dry materials in an undamaged area* (S500 p.34). With the customer's permission, go to an unaffected area of the structure with all the meters that will be used to monitor the loss and take moisture readings from unaffected materials. Document these readings as the drying goal for that loss.

Another way of determining dry standard is by finding equilibrium moisture content (EMC) for materials in your area.

The moisture content of hygroscopic materials varies depending upon both relative humidity and temperature in the surrounding air. Take moisture content readings at various undamaged job sites at different times of the year and record these readings. Over time, averages can be established. (S500 p.34-35)

Using the EMC method for determining dry standard makes it unnecessary to disturb the unaffected portion of the structure and saves time in the long run. All water damage restoration companies should determine EMC for materials in their geographic area because there are cases where there is no way to take dry standard readings.

A quick word about moisture meters. There are dozens of different types of moisture meters available, and few give the same readings on the same material. This is due to meter sensitivity and scale. These differences are most pronounced on non-invasive moisture meters. One non-invasive meter might read "14" on a dry material and another might read "151." Therefore, dry standard must be determined for each affected material AND for each meter in use on the loss. As if this wasn't already complex enough, even the same make and model of meter will disagree with one of the same model. This is because of differences in calibration. Make sure that the exact same meter is used to monitor the job each day to reduce measuring errors.

How Can I Be Sure That I Have Reached Dry Standard?

The only way to be sure that dry standard has been reached is with a thorough inspection. Documenting humidity and moisture content readings daily with quality meters provides the evidence needed to make drying decisions, and to know if dry standard has been reached.

To make effective meter readings, consider the following:

1. Follow all recommendations of the S500 in respect to Inspections and Evaluations (Chapter 8 of the standard)
2. Know your meters like the back of your hand. Read and understand the entire manufacturer's user guide. Each meter has abilities, limitations and false readings. Take these into account as readings are recorded.
3. In the initial inspection, make detailed diagrams of the affected area. Draw a moisture map of affected areas so that each day all areas are rechecked.
4. Document your readings daily. This shows progress in the affected area and backs up drying decisions made on the job.

5. Before leaving the job, double check the affected areas. In each area, use multiple technologies to verify that the materials are close to dry standard. For example, if drywall was monitored with a non-invasive meter every day, take at least one invasive reading at the end of the job to further verify that the drywall is at dry standard. Make the invasive reading in an inconspicuous location.

Documentation at the end of the job should show that ALL affected areas are close to dry standard. The S500 states, "Drying may be discontinued when moisture readings are within four percentage points of normal EMC." (S500, Page 44) I have seen job files that make the error of not documenting that all affected areas are back to dry standard. You don't want to have documentation in your job files that shows you left the structure excessively wet!

Many restorers have read in the S500 that a relative humidity reading of less than 40% is a goal for the air in a drying environment. Keep in mind that when we are given a water damage restoration project, we are not hired to simply "dry the air". We are hired to dry the *structure*. To reach a certain RH in the air DOES NOT mean the job is done. The dry air draws the moisture out of the affected materials, but it is not the finish line.

Imagine you are at a car race, and the officials merely tested the horsepower of the cars and the car with the most *horsepower* was declared the winner. Would this be a very exciting car race? Not in my book. Thankfully, in a car race, the winning car is the one that crosses the *finish line* first. It's true that the car with the most horsepower has a better chance of winning, but driver skill, teamwork and other factors matter a great deal as well. Even with all that horsepower, if the driver behind the wheel is a poor driver, there is a slim chance that he will win the race.

In a restorative drying job, the air is the *horsepower* and the dry standard is the *finish line*. If better drying air is created, the job might get done more quickly. But, success is determined by all affected materials being close to dry standard. Drying equipment should remain on site until the drying goal is reached. The restorer's understanding of the science of making water change state from a liquid to a gas, and his skill in using the drying equipment will dictate how quickly he will return the structure to a dry standard.

Conclusion

I encourage all ICS readers to go back to the August 2004 issue of ICS and re-read the articles by Jim Holland and Jeff Bishop about protecting your business from lawsuits and preventing mold contamination. Both articles gave specific suggestions in areas of your business where liability can be limited. Both authors mention *dry standard* as a vital measure of job completion.

Jim Holland highlighted the absolute necessity of good documentation in his article when he said, *Frequently in court, he who has the most thorough documentation wins.* If you have properly documented the moisture content of materials, the project's progress toward dry standard, and the completion of your assigned task, you will have defense in the event of a lawsuit. I don't know about you, but that helps me sleep better at night.

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has been involved in cleaning and restoration since 1999. Prior to joining Dri-Eaz, he worked for a large restoration company and has consulted on a wide variety of restoration jobs. He has developed training programs for employees, managers and owners of several restoration firms.

Kevin has a degree in Curriculum Development and Psychology. Before developing an interest in restoration, Kevin spent nine years teaching science at the secondary and college level. This combination of experience and training greatly benefits those who take his class or use a manual that he has helped to develop.

As an IICRC approved instructor, Kevin teaches the Dri-Eaz Water Restoration Training (WRT) and the Applied Structural Drying Course (ASD). He is an IICRC Master Restorer and has served as a company representative to the IICRC certification board.