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## **Procedures for Dealing with a Water Loss**

*By Ned Riley, Contractor/Consultant*

1. When dealing with sudden water damage, the first step after evaluating safety concerns should be stabilizing the environment.
  - a. When relative humidity is allowed to go above 60% the potential for mold growth is greatly increased. This can be in the form of secondary damage, as water vapor which turns to condensation on surfaces outside of the water travel. This can result in mold proliferation to areas outside the loss area.
  - b. Upon entering the water loss, the inspector will take psychrometric readings of the exterior and interior of the structure. This is to determine if relative humidity in the home is elevated above what would be considered normal while factoring the outside conditions.
  - c. The key to expeditious drying is to have an environment with low vapor pressure to allow evaporative action of water effected materials. To reduce vapor pressure and humidity, a dehumidifier can be used in a closed drying system where doors and windows are closed to the outside air.
  - d. When outside conditions allow for sufficient temperature and low relative humidity, an open drying system can be used by introducing the outside air and evacuating the interior humid air.
2. The second step is to determine the travel of the water. This will allow the inspector to know what materials had received water from the loss and could be potentials for future mold proliferation.
  - a. If materials remain wet for over 24-48 hours (depending on the environment) mold can begin to proliferate. This is why it is necessary to immediately perform mitigation services and drying when a water loss occurs.
  - b. Wet materials must be allowed to have access to air with less vapor pressure (moisture) to allow for the evaporative action to occur. The issue arises when wet materials are covered by other materials limiting moisture removal through evaporation.
3. If insulation gets wet it typically needs to be removed and disposed of.
  - a. This includes underfloor insulation in the crawlspace, attic insulation, and insulation at the bottom of insulated walls
4. When insulation is trapped in a wall, or a wall has been wet for an extended period of time, it is prudent to removal some wall surfaces.
  - a. Drywall is typically removed by a horizontal cut, two or four feet off the ground.
  - b. Only one side of the wall is typically removed to allow for wet insulation removal.
  - c. If mold is found on the backside of the wall, then that side would also need to be removed.
  - d. Single sheets of ½” gypsum board can typically be dried in place if exposed to consistent dry air flow.
5. It is typical for carpeting to be removed if it is exposed to substantial amounts of moisture for a long duration (over 48 hours).
  - a. Carpet pads can hold bacteria and molds and should not be dried and re-used unless deep extraction techniques are used.

- b. If the loss is under 24 hours old, deep extraction is a way to salvage carpeted floors. Without specialty equipment and a very experienced technician, this approach is not often effective.
  - c. Floating of wet carpets is a process where one removes the carpet pad and then installs air movers blowing under the carpet. By re-attaching the carpet to the existing tack strips, the carpet will begin to float. This should only be done in cases where the water loss is within 24-48 hours and the carpet is free of visible soil. Floating of carpet is becoming a procedure that is not often recommended due to its impact on air quality from aerosolization of bacteria and molds in the carpet.
  - d. Rack drying of carpets offsite is the preferred method of carpet re-use and typically results in less damage to the carpet than floating and deep extraction.
6. Cabinets and wood paneling can prevent drywall and other construction materials behind it from getting dry.
- a. When the source of a water loss is in or behind a cabinet, it is typically very difficult to dry the wall behind.
  - b. Drilling of holes in cabinet kicks and injection of air can help dry base cabinets and the subfloor below. For uninsulated walls that are accessible, the same method may be used.
7. Wood and vinyl floors can often be dried if the process starts before warping, cupping, or splitting occurs.
- a. This can be done with a floor drying system that continually extracts water from the flooring surface.
  - b. Another effective approach includes ducting a dehumidifier or heater under a tent of plastic, constructed over the flooring surface to focus hot dry air at the materials.
  - c. Pre-finished wood floors can be difficult to dry due to the baked-on floor finish. This works as a barrier, trapping moisture in the wood and typically resulting in cupping.
  - d. If additional underlayment exists it will inhibit the drying. Often floors installed over particle board underlayment will require removal.
  - e. When floors are located over a slab sub-floor, it is often prudent to remove the finished flooring surface to allow for evaporation of moisture in the concrete.
8. Concrete is a difficult material to dry.
- a. Usually requires longer drying time with hotter and dryer air than would be effective on wood framed materials.
  - b. Tile can also make drying difficult and assessment of the moisture of the concrete slab difficult.
  - c. All water affected masonry, concrete, Gypcrete, and other like materials require a comparative method to determine if the materials are dry. This method requires readings of unaffected and affected materials to be taken and compared to determine the difference in moisture content. The moisture content should not typically vary more than 5% unless other outside factors are affecting its moisture content.
9. Prior to stimulating evaporation with air movement, the work areas must be inspected for atypical mold growth. Not always observable, many times there is an accompanying musty odor.
- a. If atypical mold growth is discovered, all work in the area should stop until the area is contained under negative pressure using HEPA filtrated air scrubber(s).

- b. After the affected area is under engineering controls, removal and bagging of mold contaminated materials should commence including drywalls, carpet, trim, and other materials with visible fungal growth.
  - c. Wood products can be cleaned by means of sanding though should always be done in a controlled environment by workers adorning Personal Protective Equipment.
  - d. Mold that persists on the framing materials should be abrasively structurally cleaned, and all surfaces HEPA vacuumed and damp wiped prior to installation of air movers or other devices that could aerosolize mold spores.
10. Drying should occur until construction materials are within 4% of their dry norm.
- a. This can be determined by taking readings of dry materials and using that as the goal for drying of the effected materials.
  - b. The mitigation contractor or consultant should take regular psychrometric and moisture content readings until all materials in the loss area are dry

### **Industry Reference Materials for Water Mitigation**

- IICRC 500 “Standard and Reference Guide for Professional Water Damage Restoration”
- ASTM E241 “Standard Guide for Limited Water-Induced Damage to Buildings”
- ASTM E2266 “Design and Construction of Low-Rise Frame Building Wall Systems to Resist Water Intrusion”
- ASTM F2659 “Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds using a Non-Penetrating Electronic Moisture Meter”
- EPA “Guidelines for Response to Clean Water Damage within 24-48 hours to Prevent Mold Growth”
- EPA “Flood Cleanup: Avoiding Indoor Air Quality Problems”
- International Building Code 2006 (For NV)
- California Building Standards 2013 (For CA)