



A Guide to Water Damage  
Restoration

## MISSION STATEMENT

### THE "DOME" COMMITMENT

*"Our mission is to deliver the highest quality disaster restoration, remediation/abatement and general contracting services in a safe, reliable, efficient and environmentally friendly manner. Our vision is to be a recognized performance leader in our industry by exceeding the expectations set by our customers, by achieving operational excellence and by providing a dynamic, challenging and rewarding environment for our employees. We will build value in our company through the strength of our customers' satisfaction and by producing long term, profitable growth."*

# DOMÉ...



RESTORING  
PROPERTIES

...AND LIVES

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### **Disclaimer**

The information contained herein is intended for general use and may not be applicable for every circumstance. It is not a complete guide to government regulations and does not relieve persons who use this information from their responsibilities under the applicable legislation and or industry accepted standards and practices.

Dome does not guarantee the accuracy of, nor assume liability for, the information presented herein.

## INTRODUCTION

### **What is Water Damage?**

Any water that causes the value of any property, it's current or future usefulness to become impaired.

### **What is Restorative Drying?**

The process of removing abnormal moisture from water damaged materials, the contents or components of structures, and returning them to their former, normal state.

### **Stages of Water Damage**

- 1) Water migration
- 2) Primary structural damage
- 3) Secondary humidity damage (when RH is > 60%)
- 4) Secondary damage from fungi (inorganic materials)
- 5) Eventually – “sick building syndrome”

### **Fungi Damage**

#### **Mold**

- 1) Grows on wet organic materials
- 2) Health problems for occupants
- 3) Severe problems – “Sick building syndrome”
- 4) RH > 60% causes spore germination

#### **Mold and Mildew**

- 1) Growth can start within 48 Hrs of initial water damage
- 2) RH > 60%
- 3) Temperature between 68-86 Degrees F
- 4) Moisture content above 20%

For health reasons never allow IAQ to exceed 60% RH. A standard allowable range is 30-45% RH.

#### **The Insured's Responsibility**

- 1) Must approve emergency procedures as soon as possible
- 2) Take action to minimize loss
- 3) Preserve and protect property

## **HEALTH AND SAFETY HAZARDS**

Our first responsibility when arriving at the job site is to identify and eliminate safety hazards. The safety of the customer and anyone else in the restoration site is our first priority. For this reason it is necessary to restrict access to the restoration area to **restoration staff only**.

### **Wet Slippery Floors**

Wet slippery floors are initially the most common safety hazard. To reduce personal injury during initial restoration efforts, clearly post "Caution, Wet Surfaces" warning signs, at all entries and high risk areas and restrict access to slippery floors as necessary.

### **Major Structural Damage**

Everyone must use caution when entering a building with major structural damage. In situations where water has come from above, wear hard hats and protective eye-wear to guard against saturated ceiling which may collapse.

### **Risk of Shock/Electrocution**

An electrical-contractor should quickly inspect and evaluate the electrical system to reduce any risk of shock.

### **Mold and Mildew**

Our technicians are required to use respiratory protection when entering a structure with severe visible mildew, mould and other pathogens.

## **THE INITIAL INSPECTION**

The purpose of the initial inspection is to identify hazards, pre-existing conditions, assess the extent of the water damage, determine water contamination levels, take necessary measurements and gather additional relevant information regarding to the site.

### **Tips to Help Client Through a Water Damage Loss**

- 1) Work Authorization Form must be signed. This allows the restoration contractor to begin the restoration process quickly in order to mitigate damages.
- 2) Provide restoration contractor with continuous access to site.
- 3) Do not unplug any equipment unless advised by the contractor. Failure to comply with this request will increase drying time and the likelihood of mold growth.
- 4) Do not rearrange any of the drying equipment. It has been placed to achieve the most effective drying. Carpet and walls may “FEEL” dry, but not actually be dry. Damage may continue. Our technicians have specialized tools to know when correct drying levels are achieved.
- 5) Please set your HVAC system at 72 degrees F.
- 6) If flooding re occurs, please call us immediately.
- 7) Move and box any valuables ie. Jewellery, art, lamps, dishes, china, glasses, anything that has a sentimental value or non replaceable from the tops and interiors of all furniture that needs to be moved (unless otherwise advised by the contractor).
- 8) Remove any personal items/effects from the affected areas, after consulting with the contractor.
- 9) For your personal health and safety, please stay out of the affected areas, until the restoration is complete or you are accompanied by the contractor.

### **Initial Survey**

- 1) **Walk through water damage area, evaluate safety**
- 2) **Determine source of damage**
  - i) check water source
  - ii) make suggestions to initiate repairs
  - iii) ensure incoming water has stopped before starting restoration procedures
- 3) **Initial Testing**
  - i) MC and RH readings
  - ii) Evaluate carpet
  - iii) Check all rooms and walls for moisture
  - iv) Explain your actions to customer
  - v) Develop scope – protect contents, determine extent of water migration, determine pre existing damage (ie. Mold)

## **Pre-Existing Conditions**

Pre-existing conditions include damage not caused by water, damage that existed before water damage, stains, carpet delamination, seams and moulds. The most important pre-existing damages to note are from mould and delamination (the separation of the primary and secondary carpet backings caused by improper installation, incorrect carpet cushion and/or overly aggressive extraction).

If pre-existing damage is discovered we will inform all the parties involved. Our technicians also look for evidence of pre-existing microbial growth. If they notice a smell but do not see mould growth they will inspect further. If they discover extensive de-lamination they will inform all the parties involved and suggest replacement.

## **CONTAMINATION ISSUES**

Microorganisms can be found virtually everywhere on earth including in air and in water. Most are harmless, however, many (mould, mildew, fungi, bacteria, viruses, parasites, etc.) have the potential to cause discomfort, sickness or disease if consumed by or exposed to humans.

## **Categories of Water Contamination**

In situations where water damage has occurred, the danger of contamination exists immediately in “grey” water (Category 2) and “black” water (Category 3). Even “clean” water (Category 1) can become harmful grey water in as little as 48 hours due to exposure to microorganisms in the air and surrounding environment.

### **Category 1 – Clean Water**

Clean water originates from a source that does not pose substantial harm to humans. Eg. broken water supply lines, tub or sink overflow. After 2 days clean water becomes Category 2, after 6-7 days it becomes category 3.

### **Category 2 – Grey Water**

Contains a significant level of contamination and has the potential to cause discomfort or sickness if consumed by or exposed to humans. Eg. Discharge from dishwashers, Washing machines overflow form toilet bowl containing urine.

### **Category 3 – Black Water**

Contains pathogenic agents and is grossly unsanitary. Includes sewage and other contaminated water sources entering or affecting the indoor environment. Eg. Toilet Back flows that originate beyond the toilet trap, when structural materials or contents have been contaminated with such contaminates as pesticides, heavy metals, toxic organic substances.

## **Classes of Losses**

### **Class 1:- Slow Rate Evaporation**

Water losses that affect only part of a room or area; or losses with low-permeance/porosity materials (eg. Plywood, particle board, structural wood, VCT, concrete). Little or no wet carpet and or cushion is present (or damage is confined to a small area or wet for a short period). Minimum moisture is absorbed by materials, which release that moisture slowly.

### **Class 2 – Fast Rate of Evaporation**

Water losses that affect an entire room of carpet and cushion. Water has wicked up walls less than 24 inches. There is moisture remaining in structural materials (eg. Plywood, particle board, structural wood, VCT, concrete).

### **Class 3 – Fastest Rate of Evaporation**

Water may have come from overhead. Ceilings, walls, insulation, carpet, cushion and sub floor in virtually the entire area are saturated.

### **Class 4 – Specialty Drying Situations**

These losses involve wet materials with very low permeance/porosity (eg. Hardwoods, sub floor, plaster, brick, concrete, stone, crawlspaces). Typically, there are deep pockets of saturation that normally require very low specific humidity.

## **WATER REMOVAL**

Even before extraction you must protect the carpet from permanent staining. Some furniture can permanently stain carpet within minutes so be careful when moving furniture, not to place it directly on wet carpeting. Use foil or plastic squares to protect carpet and floors from staining. Lift furniture properly; do not drag on carpeted, hardwood or vinyl flooring.

### **Removing Water from the Carpet**

#### **Step 1: Initial Extraction**

Remove the “easy” water first. The first extraction step consists of a quick vacuum extraction pass over the carpet surface with a light wand. The primary purpose of the initial extraction is to prevent the spread of water. It is ineffective for removing water from cushion.

#### **Step 2: Sealed Extraction with Weighed Tool**

Once standing water has been removed, you must identify pockets of saturation. Weighted drag tools are absolutely necessary when:

- Extracting water deep in carpet
- Restoring as opposed to replacing cushion and
- Working with glue down carpet

#### **Step 3: Antimicrobial / Biocide Treatment**

##### **Decontamination**

The most effective way to reduce or retard growth is to dry materials rapidly, however to destroy microorganisms you must use disinfectants/biocides.

##### **Fungicides**

Fungicides should be used for water damage restoration because they have been tested to kill pathogenic and non-pathogenic fungi.

##### **Deodorizers**

Deodorizers have some antimicrobial properties; however a more reasonable expectation is that it will provide a pleasant smell for the customer while you are removing the source of the unpleasant odour.

### **Application Procedures**

In order for biocides to be effective, they must penetrate through all affected areas. Always use a hot water mix, clean equipment and avoid physical contact.

Initially, and before handling,, all affected materials must be treated by saturation spraying with, or immersion into a disinfectant solution. The pre-spray is a first application only and intended to reduce the spread of microorganisms as quickly as possible. A second application must be applied for optimal disinfection.

## **Liability Issues**

It is the technician's responsibility to understand the chemicals they are using, accident prevention procedures and protective clothing and equipment required.

Always brief the customer on the hazards associated with any chemicals used. Provide him/her with MSDS and obtain consent of product use (document). Most importantly, vacate the area/premises before applying any disinfectant and consider the health of workers and occupants.

If our technicians determine that a sewer-damaged carpet must be removed and disposed and the owner or adjuster disagrees they will immediately cease work to avoid liability.

## **Step 4: Final Extraction with Weighted Tool**

Thorough extraction is necessary on saturated carpets to decrease drying time and contain the migration of water. Several passes may be necessary when dealing with carpet with cushion, however avoid being overly aggressive as wet carpet is easily damaged. Remember the importance of deciding to restore or replace cushion during the initial service call.

## **Drying of All Materials**

Our technicians use moisture detection tools to confirm materials are at pre loss condition and that restoration job is complete.

## **Incomplete Drying**

Most odors are microbial. Most residual odors are related to abnormal moisture and that suggests incomplete drying. If you remove the moisture you remove the odor.

## **Hygroscopic Materials**

### **Primary Damage**

These materials absorb moisture, begin to swell, and continue to do so till they reach their equilibrium.

### **Secondary Damage**

When hygroscopic materials, undamaged by liquid water, become damaged in conditions of high humidity. This will usually appear in the form of wicking, high humidity absorption and mold growth.

## **Other Structural Materials**

### **Ceilings (drywall or acoustic)**

In order to speed up drying, drywall or acoustic ceiling tiles that are saturated must be removed and discarded ASAP.

### **Particle Board**

If swollen or delaminated must be removed and replaced.

### **Concrete**

Is quite porous and can absorb great amounts of moisture. Use air movers and dehumidifiers for proper drying.

### **Wood**

Fungal damage can occur when MC is above 20%, so quick drying is very important.

### **Furniture/Contents**

High humidity causes wood furniture to swell. Drill holes below cabinets (where possible) and built in furniture to allow for proper air movement and quick drying.

### **Documents**

When wet with clean water they can be saved if dried within 48Hrs.

### **Drapes**

Fold up drapes to avoid contact with water. They will develop rings that can not be removed.

### **Sub Floor – Under Carpet**

If carpet is over hard wood flooring, carpet should be removed for in plant drying.

### **Sub Floor – Under Ceramic Tiles, Vinyl Tiles, Laminate**

Flooring must be evaluated with non-penetrating moisture meter. If particle board under vinyl tiles has swelled it must be removed and replaced. Laminate should be replaced when damaged from moisture underneath. This is necessary to completely dry the sub floor. Make sure to also discard any vinyl floor covering.

### **Walls/Baseboards**

Normally baseboards should be removed during restoration to allow for complete inspection and because it acts as a vapor barrier and retards wall drying.

### **Vinyl Wallpaper**

Should be peeled back to an appropriate height because it acts as a vapor barrier and does not allow for proper and complete drying.

### **Cushion Removal**

If cushion is flooded by grey or black water it should be removed and disposed. If it has been affected by clean water and restoration begins soon after flood begins it may be possible to save it.

## **EQUIPMENT**

### **Air Movers**

The primary purpose of air movers is to increase the rate of evaporation. For carpet drying, the more laminar the airflow the better; remember it is the air velocity at the interface between the wet materials and the air that actually does the work. Use as many air movers as needed to blow air on all wet areas. The general rule is that we place one air mover for every 50Sq.Ft. of commercial office space or 10 to 14 linear feet apart at 45 degree angles to walls in residential environments.

### **Placement**

The following list rates the best to worst placement of air movers for subsurface drying:

- Corners
- Doorways
- Vinyl – carpet junction
- Closets
- Split seams

## **Dehumidifiers**

The most popular type of dehumidifier in the restoration industry is the LGR (Low Grain Refrigerant) dehumidifier. It has proven to be the most cost effective type of dehumidifier for conditions above 27 degrees C (80 degrees F) and down to 1 degree C (33 degrees F). They also work best for porous materials and surface moisture.

### **Placement**

The dehumidifier must be operated in an enclosed area to achieve maximum efficiency. All doors, windows and other openings to the outside must be closed tightly. Under normal circumstances the dehumidifier should be positioned centrally in the room. However, if a particularly wet area is apparent, the air outlet grill can be directed towards that area of the room. The grill should never be closer than three feet from the wall.

When drying several rooms, the units should be placed at equal distances from one another to cover the whole floor. Internal doors and windows should be left open. Try and arrange each unit to blow air from one area into another i.e. from a corridor into a room.

### **Operation**

When the dehumidifier begins working in a relatively saturated environment, it will remove relatively large amounts of water and continue to do so at a decreasing rate, until the amount of water being removed in a given time period is considerably less. This is an indication that the dehumidifier is doing its job. The performance of the dehumidifier should be judged by the reduction of humidity rather than the amount of water being removed. Remove refrigerants when they stop extracting water.

## **Moisture Meters**

They measure the amount of moisture that is absorbed by porous structural materials.

- 1) **Non Penetrating** – Flat pads contact surface. Best used to determine if sub floor or walls are wet below vinyl or ceramic tiles. Used for wood, drywall, plaster and brick.
- 2) **Penetrating** – Sharp pins penetrate materials and measure their moisture content. Used for wood, drywall, plaster and insulation.
- 3) **Thermal Hygrometers** – measure humidity and temperature in air mass.

**\* Monitor and document at least every 24Hrs.**

## **THE FINAL INSPECTION**

Final inspection will be conducted with the client and insurance adjuster present. Restoration project can only be deemed completed when structure and contents have been returned to pre loss condition. Once client and or adjuster give us the final clearance we can prepare a detailed summary report to submit to them for their files and future reference.

## NOTES

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**75 Konrad Cres., Unit A  
Markham, Ontario  
L3R 8T8  
Tel: 905.415.1851 416.291.7191  
Fax: 905.415.9412  
Toll Free: 1.877.694.8397  
[www.domeservicesgroup.com](http://www.domeservicesgroup.com)**