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WATER DAMAGE ASSESSMENT

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Credentials

Certified Mold Inspector - Certified Mold Remediation Contractor - Environmental Hygienist
IICRC Water Restoration, Applied Microbial Remediation, and Fire and Smoke Technician
Radon Residential Measurer 106364RT – Radon Residential Mitigator 10-6415RMT
BPI Building Analyst Professional – BPI Envelope Professional - California General Contractor &
Asbestos Abatement Contractor #960994 – Lead Safe Renovator – Nevada C-3 Contractor #0079127

Dear Interested Parties,

At the request of the owner, Tahoe Mold and Water did a limited visual inspection of the water loss at the above referenced property originally on 4/27/15 at 8:00PM and later at 7:00 PM on 5/1/15. The purpose of this assessment is to give evidence to the extent of damage as a result of the water loss that occurred within the previous 2 weeks.

Background

The property is used as a short term rental. Upon the renters showing up they noted an odor and the presence of water in the rear bedroom. They alerted the property manager who alerted us. It is reported that the home has been unoccupied for the previous 2 weeks in which time the loss occurred. Initially we visited the property for the purpose of giving the customer a free assessment with the intention of proceeding with the mitigation work. The customer had been convinced to use the insurers preferred vendor. Given the work scope provided by the adjuster and their mitigation contractor, the customer felt it prudent to have an objective third party water mitigation consultant to assess the damage and provide an opinion of the necessary mitigation work to correct the issue.

Observations

Upon arriving to the property the inspector met with Plumber Name. He had just repaired the rupture that had occurred at the ice maker supply line stop drain. This has resulted in large amounts of water being discharged into the home on all levels.

Kitchen

The third floor damage appears limited to the kitchen area with slightly elevated moisture in the wood flooring adjacent to the kitchen stone flooring. The flooring is within reasonable moisture content and has no obvious signs of damage as a result of the current loss.

The kitchen cabinets obstruct exterior wall drywall from access to air movement. Moisture readings of wall assembly are limited to the accessible area where the dishwasher was removed. Given the location of the loss, the exterior wall behind the cabinets would likely have elevated moisture. Readings of drywall next to the loss indicates substantial moisture in the drywall with presumed insulation behind it. In addition the sink bas cabinet adjacent to the water loss has

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substantially elevated moisture and obvious damage requiring cabinet box replacement. To properly dry the exterior wall assembly the contractor should remove the cabinet, inspect cabinets for damage, and then flood cut the wall up to the height of the elevated moisture. After the wet insulation should be removed and disposed prior to begin drying with air movers.

It is also possible that moisture has accumulated under the island cabinetry. Drying of the underside is recommended unless verification can be provided that the subfloor and cabinet kicks in this area are dry. Drilling cabinet kicks and injecting air into half of the holes with the others remaining as exhaust ports is the preferred procedure for drying cabinet bases in place.

Moisture readings of the drywall on adjacent bathroom wall facing toward the kitchen had elevated moisture content running approximately 1-2' from the floor. The back side of the wall indicates normal moisture with elevated moisture at the baseboard. Needed work scope in the bathroom is limited to then removal of baseboard on the wall with the kitchen to allow for inspection and determine if construction materials are dry. If contractor has a moisture meter that allows for measurement of moisture behind baseboard, then verification of dry conditions here would be sufficient.

Bedroom 1/ Bedroom 2/Hallway

The second floor has carpeted bedrooms with stone hall and entry. Upon the first visit the entry of both eastward bedrooms had elevated moisture on the carpet. On the second visit readings of these areas indicate dry conditions. It is thought that wet towels left in the entry had allowed some water to migrate to these carpeted areas. On the second visit the inspector determined that water travel was less than thought, as some moisture was brought from the loss area to outside the loss area as a result of the initial water mitigation efforts done by the plumber or other responder.

The mitigation contractor has provided a blue tape line to delineate the water travel as a result of the loss. The inspector agrees with the contractor's water travel indications. The contractor and inspector agree that a portion of the stone hallway has elevated moisture and will need to be dried. It is always more difficult to promote evaporation of subfloor and framing moisture when there is a sealed finished floor installed over it. In this case there is quartzite flag stone with a sealer present. If air movement can be promoted over the stone it is possible that this can be dried without removal. If drying is substantially inhibited, either air movement will need to be provided to the subfloor from below or removal of flooring and drying from above will be necessary.

Bedroom #3

The third bedroom when entering had 3 air movers in place running and pointed at walls and glue down carpet flooring. The carpet has no pad beneath but instead is glued directly to the concrete. It seems probable that the mitigation contractor extracted water from this carpet as the moisture level is slightly elevated compared with standing water upon the initial visit. If carpet is left wet for an extended length of time it can propagate mold and/or delaminate resulting in needed replacement.

Given there was previously standing water in this room it would be prudent to remove baseboards in the affected areas especially the adjacent wall with the master bedroom where the water presumably flowed under. All furniture has been removed from the floor except a small end table

that is on almost dry carpet. Ideally the furniture should have block pads underneath to prevent damage to the furniture and carpet if moisture persists under the carpet surface.

Rear bedroom

The rear bedroom is directly below the water source. On the original visit water was dripping from above into this room through the t&g cedar ceiling. Water was then dropping on the laminate floor that had standing water on the first visit. Currently it has elevated moisture content and is damage beyond salvageability. There likely is a particle board underlayment, that when wet, needs to be torn out and replaced.

The ceiling has some cupping and nail bleeding. It appears to be drying well with just slightly elevated moisture in some areas. Inspection of the ceiling through the removed recessed light indicates that the ceiling does not have a drywall overlayment or insulation. Given this, the ceiling should dry well in place but may still have remaining signs of visible damage.

The furniture in this room was exposed to water from above and below. Currently most of the furniture remains in this room wrapped in plastic. The mattress is not salvageable and the bed had visible signs of water damage at its base. For restoration of bed frame to be possible, it is recommended that it be dried immediately and not packaged in plastic that can propagate additional water damage. Immediate assessment of personal property is recommended including disposal of non-salvageable goods with photo documentation, restoration of salvageable goods, and packing and storing of undamaged property in dry areas.

Drywall has elevated moisture content on the west and east walls with the south wall inaccessible for readings due to personal property. The west wall is currently marked with an X that likely indicates its planned removal. There is no indication of partial removal of the wall between bedroom 3 and bedroom 4. This wall should also be opened up and if any moisture is detected, the south wall as well.

Lower Den

The lowest level had puddling in low points of the floor upon the first visit. On the second visit the water had been extracted and the vinyl floor remains in place. The floor has visible damage indicated by an Arrow provided by the contractor. Regardless of this small damage, it is recommended that the floor be removed to expose the wet concrete slab below. Without access to the slab, moisture content readings can't be taken unless through holes to be drilled in the floor to allow for destructive testing of the concrete. In addition, concrete slabs can be difficult to dry, especially when encapsulated in vinyl flooring. This makes focusing air movement to stimulate evaporation near impossible. If the pool table can't be removed soon, it is recommended that the floor be cut around it to get air movement stimulation as soon as possible. The contractor should assess the subfloor using an ASTM approved concrete moisture measurement protocol until all concrete is within 5% of the dry norm.

The wall system and cabinets were constructed in a manner to be protected from ground moisture. They are all set off the floor with a cavity below and behind them. Given this fact it does not appear necessary to tear out any wall surfaces or cabinetry to allow for wall drying. Currently the contractor has air movers pointed into these wall cavities to stimulate drying. Readings of walls were slightly elevated though much less then on our initial visit.

The ceiling above still has significantly elevated moisture. It does not appear that the contractor had determined the presence of drywall or insulation above as all light fixtures on the ceiling are set. Given that this area had experienced large amounts of moisture as a result of the loss, and that the ceiling materials are still significantly elevated after many days of drying, it seems likely the ceiling has drywall above requiring that it be removed. If cavity drying had been commenced upon arrival, there was a possibility that this could be dried in place. Although given the duration of time for which it has been wet, it is prudent to remove and dispose of all elevated moisture containing materials in the ceiling.

The personal property including the pool table in this area had received large amounts of water. Inspection of property is recommended to determine salvage ability before elevated moisture provides additional damage.

All electrical components, personal property, appliances, and any other material or equipment that should not get wet should be assessed by a qualified technician to determine functionality and needed replacement. Cleaning of the heating duct system may be prudent as it is likely that water has found its way into floor registers. Any lighting with transformers or ballasts should be replaced if wet. Any electronics and appliances with signs of water intrusion should be refurbished or replaced to prevent future failure as a result of the loss.

It may be prudent to have a third party clearance inspection performed to confirm the home is free of atypical mold growth as a result of the loss. In spite of the odor encountered when entering the home, and the suspected duration of the water loss, there does not appear to be visible signs of atypical mold growth. If during demolition any materials removed have visible atypical mold growth present, then it is recommended that the job be halted until the property can be assessed from an environmental consultant with mold remediation work scope provided. At that point all air movers in areas with mold should be disabled and negative pressure containment provided to isolate the proposed mold remediation area and mold containing materials. The contractor should follow recommendations from the hygienist for the work scope including the use of a 3rd party post remediation verification and personal protective gear.

Repair Recommendations

- *If at any time during demolition atypical mold growth is discovered then demolition should stop until negative pressure engineering controls with air scrubbing can be set up to prevent contamination of areas and furniture outside the loss area.*

Kitchen

- Run a dehumidifier substantiated by AHAM calculations of the loss to run during demolition and drying procedures.
- Detach and remove all appliances in base cabinet combination where the water loss occurred.
- Detach all cabinets on the exterior wall
 - Inspect cabinets for damage. There was obvious damage to the sink base cabinet adjacent to the dishwasher
 - If cabinet boxes are damaged it may be possible to detach the existing face frame and install on new cabinet boxes

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- Drill holes in kick of island with a minimum of 1 input and 1 output per cabinet component.
 - Use air movers with larger holes or an injection dry system to promote air movement under these cabinets
- Remove all baseboards where water travel is indicated.
- Flood cut drywall a minimum of 2' up on the exterior west wall and the wall separating the adjacent bathroom from the kitchen
- Monitor drying of stone flooring with a concrete type moisture measurement system until all stone flooring is within 10% of the dry norm.
 - Natural stone has varying densities that could give varying readings when dry as compared with the consistency of concretes.
 - If drying is slow it may be necessary to
 - provide air movement from below
 - tent the floor and duct a dehumidifiers exhaust under the tent
 - Or remove the stone flooring to allow for drying
- After all components and materials that need to be removed are removed, vacuum clean the work area prior to providing air movement to water affected structural materials.

Bedroom 3

- Remove baseboards in the water travel area
- Have a flooring professional assess carpet to determine if replacement is necessary.
- Confirm carpet and drywall are at dry norms prior to removing drying equipment
- Flood cut either this side of the common wall with bedroom 4 or from bedroom 4 side.
- After vacuuming work area clean

Bedroom 4

- Run a dehumidifier substantiated by AHAM calculations of the loss to run during demolition and drying procedure
- Move furniture off floor and separate damaged furniture from unaffected furniture.
- Remove all baseboard in water travel areas
- Remove Laminate Floor and underlayment and dispose.
- Remove drywall from west exterior wall
- Flood cut east wall 2' up and cut to south exterior wall if moisture is detected in this wall.
- Continue air movement directed at sub-floor, open wall cavities, and any areas of the ceiling that are above 12% moisture content
 - Ceiling should later be inspected to determine if replacement is necessary.
 - Nail staining and gaps left from cupping may be unable to be repaired.

Lower Den

- Run a dehumidifier substantiated by AHAM calculations of the loss to run during demolition and drying procedure
- Remove pool table and personal property if feasible
 - Pool table received direct water and should be inspected and repaired by someone who is capable of repairing said item
- Remove entire vinyl floor except cabinet base area to allow moisture in concrete to evaporate.
- Extract water from concrete surface

- Install air movers directed at wet areas of concrete slab
 - If drying is slow it may be necessary to
 - tent the floor and duct a dehumidifiers exhaust under the tent
 - Continue drying until concrete materials are within 5% of dry norm using an approved method for concrete moisture readings.
- Continue air movers directed under wall cavities until construction materials are below 12%
- Remove T&G ceiling and suspected drywall above
 - Remove any wet insulation (if present) in ceiling cavity
 - Direct air movers at wet framing and ceiling
- Condition of ceiling light fixtures is in question and replacement is prudent to prevent sudden failure.

General

- All electrical components in loss area should be inspected and replaced if damaged
 - Electronics can function immediately after getting wet and later fail as a result of this
- personal property that was in the loss area should be inspected
 - Unsalvageable items should be disposed of only after customer and insurer approval
- Appliances in loss area should be tested by a trained technician
- Cleaning of the heating duct system may be prudent as it is likely that water has found its way into floor registers
- Any lighting with transformers or ballasts should be replaced if wet.
- If there is a mold concern a 3rd party post mitigation/remediation verification can be done by a trained professional to ensure there is no atypical fungal growth as a result of the loss.

General Inspection Protocol

Currently in the States of California and Nevada there is no legislation requiring inspectors, Water Mitigation Contractors, or Mold Remediation Contractors to follow any set inspection or repair protocol. Available are many resources including certifying boards, trade groups, the EPA, and industrial board of hygiene that give methods for determining the existence and procedures to remedy water induced issues related to a home. The inspector will perform their assessment for water damage using:

- 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”

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When dealing with sudden water damage the first step after evaluating safety concerns should be stabilizing the environment. 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. 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. It is also the key to expeditious drying 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. 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.

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. 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. To dry properly, wet materials must be allowed to have access to air with less vapor pressure or 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.

If insulation gets wet it typically needs to be removed and disposed. This is typically an issue when underfloor insulation in the crawlspace gets wet from above or when an insulated exterior wall is wet.

In this cases where insulation is trapped in a wall it is prudent to flood cut or cut a horizontal line two or four feet off the ground on one side of the wall to allow for wet insulation removal. Single sheets of ½” gypsum board can typically be dried in place if exposed to consistent dry air flow.

It is typical for carpet pads and underlayment be removed as well as the finished flooring if the material is exposed to substantial amounts of moisture. Carpet pads can hold bacteria and molds and should not be dried and re-used. Floating wet carpets, a process where one installs air movers blowing under the carpet and re-attaches the carpet to the existing tack strip. 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 recommended due to its impact on air quality from aerosolization of bacteria and molds in the carpet. Rack drying offsite is the preferred method and typically results in less damage to the carpet.

Cabinets and wood paneling can be an obstruction preventing drywall and other construction materials behind it from getting dry. When the source of a water loss is in or behind cabinets it is typically very difficult to dry the wall behind. 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 with the consideration of whether it is an insulated wall requiring some demolition.

Wood floors can sometimes be dried if the process starts before warping, cupping, or splitting occurs. This can be done with air movement from above or by means of ducting a dehumidifier or

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heater under a tent constructed to focus hot dry air at the materials. Pre-finished floors can be difficult due to the baked on finish that works as a barrier trapping moisture in the wood and typically resulting in cupping. If additional underlayment exists it will inhibit the drying. When floors, vinyl or wood, are located over a slab floor it is prudent in most cases to remove the floor to promote evaporation of water affecting the concrete.

Concrete, being a difficult material to dry, usually requires longer drying time with warmer and dryer air that would be effective on wood framed materials. Tile can also make drying difficult and assessment of the moisture of the concrete slab impossible. 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.

Prior to stimulating evaporation with air movement, the work areas must be inspected for indications of atypical mold growth. Not always observable, many times there is an accompanying musty odor. 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). 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. Wood products can be cleaned by means of sanding though should always be done in a controlled environment adorning Personal Protective Equipment. Any 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.

Drying should occur until construction materials are within 4% of their dry norm. This can be determined by taking readings of dry materials and using that as the goal for drying of the effected materials. The mitigation contractor or consultant should take regular psychrometric and moisture content readings until all materials in the loss area are dry. During this time, regular movement of air movers from dryer to wet areas is recommended. It also is important for all equipment to be at peak performance with clean filters to give the best drying results.

General Inspection Protocol

The inspector will perform their assessment for mold damage using:

- EPA-“Flood Cleanup: Avoiding Indoor Air Quality Problems”
- EAA – “Environmental Assessment Guidelines”
- IICRC 520 “Standard and Reference Guide for Professional Applied Microbial Remediation”
- EPA- “Mold Remediation in Schools and Commercial Buildings”
- ASTM E2418 -“Standard Guide for Readily Observable Mold and Conditions Conductive to Mold in Commercial Building”
- ASTM E2266 -“Design and Construction of Low-Rise Frame Building Wall Systems to Resist Water Intrusion”
- NACHI – “How to Perform Mold Inspections”

The first step in properly evaluating a potential mold problem is the visual inspection. Throughout this phase an inspector is looking for three things, evidence of previous moisture

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intrusion, evidence of mold growth and areas with a potential for future mold infestation. An assessment typically covers the interior living space, basement, attic and crawl space. Exterior surfaces are examined for evidence of water damage / intrusion and potential for future problem areas. Visual Inspection is limited to reasonably accessible and visible areas of the home. There may be visible mold growth and water intrusions that the inspector has not noted in this limited mold analysis report.

Surface / Bulk sampling is used to identify a mold type at a specific location. This technique is useful also in ruling out possible discolorations or staining that sometimes exhibit mold like characteristics. Typically a cotton swab or piece of clear tape is used to collect a small quantity of material. In turn this is analyzed either with a fungi screen or culture analysis. Natural Link Mold Lab, Reno, NV

Air sampling is the most effective method for determining whether a mold infestation is potentially creating an unsafe living environment. Our testing procedure incorporates the Aero Tech Laboratory Aero-Cell cassette. Air quality is tested by drawing 15 cubic liters of air per min and impacting the airborne particles over a glass substrate. Typically the process runs for 5 minutes, producing a sample size of 75 cubic liters. Next, the cassette is sent to a laboratory, where the spores are identified and counted.

These numbers alone do not give us enough information to accurately determine the level of contamination. Outside control samples are needed to identify the quantity of mold found in the natural environment. Indoor levels are normally found at approximately 50% of outside samples.

Though toxic molds have received significant media attention lately, little is yet known of their interaction with the human body. The most common reaction we feel comes from an allergic response to airborne spores. This occurs when our body produces histamines in a response to mold spores entering our bodies, in the same way grass pollens can bring about sneezing and congestion. Toxic molds, on the other hand, are still a matter of contentious debate among the scientific and medical community.

Thus it is important to interpret your laboratory results with caution, recognizing that every day our bodies come in contact with toxic mold spores. We are looking for levels elevated beyond our natural environment. And more importantly, what is causing the underlying moisture problem that allowed mold spores to flourish.

The following is a brief description of the terms commonly found in your report:

Volume (m) Volume is provided in cubic meters. 5 minutes at 15 liters per minute yields 75 liters, or .075 cubic meters is the most common sampling volume. Sampling volumes may vary depending on locations and particulate in the air.

Result: This column expresses the spore count per cubic meter, useful when comparing samples with different quantities measured in other locations.

Please refer to your Natural Link Mold Report for lab results. (If Applicable)

We have practiced diligence, care and objectivity in the above mold inspection report.



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TM&W makes no representation, certification, warranty, assurance or guarantee of any nature with respect to any of the following

- That all mold that may be on the premises will be detected or identified;
- That the condition of the premises as it relates to water problems, excessive moisture or the presence of mold will be the same any day or time following the assessment;
- That the property is habitable or does not pose potential health risks to current or future occupants;
- That all actual or potential sources of water or excessive moisture that may contribute to the development of mold currently or in the future have been identified and repaired

Notwithstanding the above, we will use our best efforts to find and recommend repair for any and all water intrusion and mold proliferation issues.

Sincerely,

Edward G Riley

Edward (Ned) Riley
President/Contractor/Consultant

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Bedroom 4



Visible damage to wood ceiling finish. Also some cupping and shifting of ceiling noted.

Bedroom 4



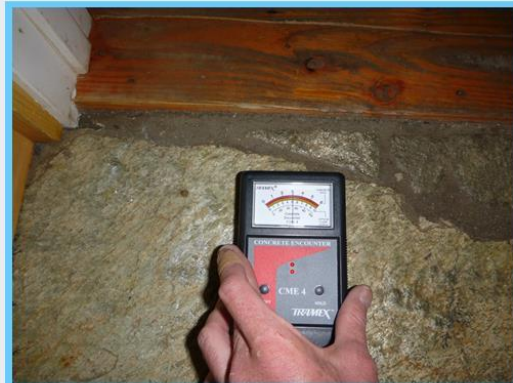
Moisture readings are over 30% with furniture, baseboard, drywall, and flooring remaining.

2nd Floor Hallway



Electronic non penetrating moisture reads about 2% at the unaffected entry taken from multiple readings.

2nd Floor Hallway



Electronic non penetrating moisture reads about 30% at the area adjacent to bedroom 4 taken from multiple readings in the area.

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Bedroom 4



Exterior West Wall has substantially elevated moisture requiring drywall and insulation removal. Trim and baseboard was be removed as well.

Lower Den



Contractor provided blue tape to delineate travel of water.

Lower Level Den



Visible bubbling and cracking of vinyl plank flooring.

Lower Level Den



Wall and cabinets installed with gap between them and the flooring. This allows for materials to be less water effected then in typical construction and allows for drying in place.