

PREFERRED HOME INSPECTIONS, INC.
Licensed Mold Assessment Company
Mold Assessment Report
713-249-8581

Date: March 7, 2018 **Date of Inspection:** March 3, 2018
Prepared for: [REDACTED]
Concerning: [REDACTED]
Contact: [REDACTED]

Reference Indoor Air Quality chain of custody: #: 52123988

Dear Mr. and [REDACTED],

This letter is to inform you that the indoor air quality testing we performed at the above address came back from the lab today with results that showed LOW levels of mold circulating in the air of this home and office. As shown in the attached lab report, I tested the air throughout the home and garage office using a slit impaction cassette and one outside as a “control” using an Air-o-cell/Allergenco-D cassette. I tested at each air return. This is a slit impaction sampling method; a test method that is nationally accepted; the purpose is to capture a “snapshot” of the air as it is being drawn into the cassette. The draw from an air return pulls the air past the low flow pump, and into the cassette. The air that circulates throughout the entire HVAC system will have particulates that cannot be seen without a microscope.

Assessment:

During our visit to the above addressed property, we performed an inspection on the home and investigation for visible mold and conditions that would favor mold growth. The following was found:

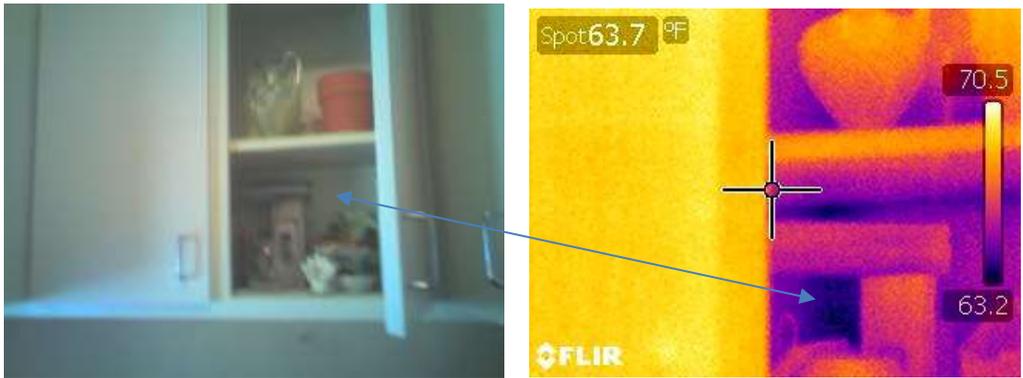
1. Laundry room - Visible mold growth was seen in the exterior wall of the laundry room and on the art, that had been hanging in the vicinity. Inside the cabinetry above, the wall was found to be wet at .7%, scale 3, gypsum, but no higher. The moisture was also not found at either end of the wall but as centrally located.



Moisture found using the Tramex Moisture Encounter and the Delmhorst BD2100 showed that moisture was centrally located and not on the far right or left

The wallpaper on the walls were vinyl type, which can retain moisture and allow mold growth. Due to chronic water penetration, heavy mold growth is expected inside this wall and under the paper. Recommend removal under proper containments and EPA guidelines. Moisture testing showed that the moisture started within the lower cabinets at .7% - .8%, scale 3, gypsum and running downward. The moisture was not found on the right or left sides of the central area, leading the inspector to suspect the cause may be plumbing within the wall for the laundry sink or drainage from the water heater found to be leaking in the attic whose pipe runs down the corner of the same wall.

Reference scale for **gypsum (#3)** is as follows
0% to 0.4% normal moisture
5% slightly elevated moisture dependent upon proper air conditioning of structure
0.6% to 1% medium moisture content shows presence of moisture - leak or other chronic water penetration
1% and over – indicates complete saturation of the product due to a leak or chronic water penetration



The digital image of the area discussed, above left, and duplicate infra-red image, above right, shows a “moisture signature” as blue (cooler) against a background of yellow/orange, which is warm

Water stains on the ceiling in the laundry room ceiling, both on the furdawn above the window and the actual ceiling proved to be dry when tested, leading the inspector to believe that this incoming moisture was during heavy wind/rain events that was severe enough to stain the ceiling, but not chronically.



Above photo, left, shows area outside of the wet front wall of the laundry room being discussed. Right photo shows furdawn and ceiling above window that has water stains but is dry.

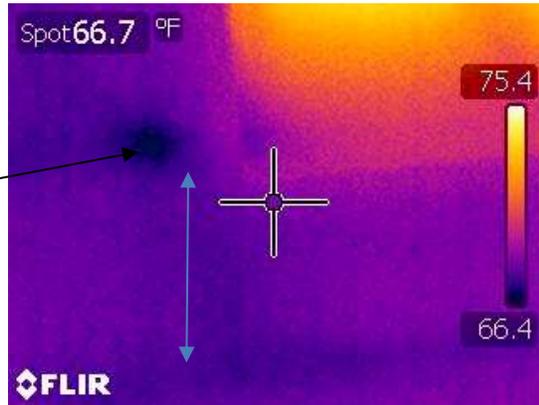
- a. On the outside of the exterior laundry room counter wall (front wall), the water heater emergency drain line was dripping as previously discussed. Inspector suspects this may have something to do with moisture on the wall. Testing with the infra-red camera did not show the sink water lines, which are also suspected
- b. On the outside of the exterior laundry room counter wall (front wall), stone was installed. There was no obvious reason for water penetration, other than no soffit overhang which would allow water to run down the wall during rain events. This would be the third reason.

The walls of the laundry room must be opened to remediate interior mold growth – now positive identification of the cause can be determined.

2. Breakfast room wall at windows and secretary desk - at the right elevation second roofline, “J” flashing is seen, not step flashing. The roofline is caulked. The infra-red image below depicts moisture incoming at the lower furdawn area, which runs down the wall and has manifested on both the exterior wall and the lower left side of the build-in secretary desk, which were both wet when tested using the Delmhorst BD2100.



Flashing at this roofline may be the culprit for water penetration into the breakfast room walls, shown below.



The digital image of the area discussed, above left, and duplicate infra-red image, above right, shows a “moisture signature” as blue (cooler) against a background of yellow/orange, which is warm

Reference scale for wood (#1) is as follows:
6%-13% normal moisture content for the Houston area
13.1%-16% shows elevated moisture, possibility of past or present leak
17% and over shows excessive and/or recent moisture; wood deterioration/mold begins at this point.



Testing on the baseboard showed a 20.7%, scale 1, wood.

The cabinet and walls must be opened under containment to remediate the mold within.

3. Water stains running down the stairwell wall are due to uninsulated register boot seen in the adjoining attic. Recommend insulating the boot to stop the excessive condensation. The insulation surrounding the boot has visible mold growth indicating chronic moisture.



4. The office above the garage had visible water stains around the wall plates below the roofline shows below (dry) and mold growth stains on the lower wall above the baseboard, not presently wet. This is due to the porch roofline/soffit on the outside, which also has deteriorated siding and possibly oxidized flashings.



Visible
mold
growth



This wall should be remediated under EPA guidelines for removal of mold within the wall

To remediate the above three areas properly on the interior (after stopping incoming moisture from the roofs in two areas, we recommend that you use a licensed mold remediator who will follow our guidelines (Protocol for Remediation) and perform duties as set forth by the Department of State Health Services.

The following items were seen that have the potential for chronic water penetration, which could cause mold growth – recommend repairs:

5. NP1 urethane caulking needed between dissimilar materials of stone and wood; also, covering nail heads on the roof



Uncaulked or rusting nail heads allow water penetration into the structure



6. Windows on the home were not flashed behind the siding, only the 1" x 4" trim, which can allow water penetration. Removal of 1" x 4" trim needed to install "z" flashing under the siding.



7. The roof on the upper right elevation – siding on sidewall must be removed so that step flashing can be installed from top of the right to bottom. Presently there is only caulk.



8. The roof on the lower right elevation – same as above
9. The roof at the front entrance – step flashing is not under the siding and has no counter-flashing, which will allow water penetration.



10. Flashing that is popped up should be re-nailed and nail heads caulked with NP2 urethane



11. The chimney flashing is rusted and should be replaced (where the corner meets the roofline, it is extremely rusted and likely not properly flashed. This will require approximately 1 square of roofing to be removed and some siding.



- a. The chimney cap, which is metal, should have an anti-oxidant applied (We use “Gem”).



12. Oval window at front does not have caulking between the frame and cedar trim



13. Cladding is 12” “lap and gap” cedar. At the front elevation “wing wall” at the left side. No moisture barrier was seen and no caulking between dissimilar materials (stone and siding)



14. The boot covers are chewed by squirrels and should be caulked or replaced with “bonnets”



Existing lead boots with chewed tops



metal bonnets

15. On the left elevation, a roofline has a metal “cap” that is rusting and in need of replacement above the attic space is allowing water penetration into the shingle decking and onto the HVAC unit. Roofer needed.
16. On the right elevation attic, oxidized water heater lines are ready to burst – recommended immediate action by a plumber was noted by the homeowner. Note that this MAY be the cause for water penetration to the lower laundry room wall.



**Note that although we use our infra-red camera to detect moisture leaks, we are unable to detect moisture behind or under large pieces of furniture

Notes regarding the method of collection:

Zefon Bio-pump Plus with the Air-o-cell / Allergenco-D is a slit impaction sampling cassette can determine the presence and concentrations of most common bio-aerosols, and provides simultaneous analysis of other potential contaminants including fibers and inorganic dust. The air samples are collected at a flow rate of fifteen (15) liters per minute for ten (10) minutes, 150L of air; for normal conditions. Samples are then shipped overnight to a laboratory in Ft. Lauderdale, Florida for analysis.

When testing areas that may have high debris the amount of time changes; ex: high debris 15L/5 mins. = 75L.

A wall cavity check, (inner wall test) would be 15L/30 secs. = 7.5L

Keep in mind:

Incomplete baseline data exists for bio-aerosol concentrations because of so many different types of buildings, in different geographic areas, with different seasonal parameters.

There is an absence of epidemiological data relating bio-aerosol exposure to specific building problems. There is wide variability in microbial populations as well as wide variability in human susceptibility to bio-aerosol exposure making evaluations of cause-effect relationships problematic.

Mold Management Plan:

The following information is required to be placed in every assessment report to help people understand how to combat mold growth.

Every home should have good management plan for mold prevention will include the following:

1. Maintain low indoor humidity, below 60 % relative humidity(RH), ideally 30-50%, if possible.
2. Keep the building envelope sealed so moisture does not enter during rainfalls or wind driven rain situations, this includes grading issues
3. If sudden discharges occur, emergency plans must be set in action to assure that water is cleaned up within 24-48 hours.
4. Assure that your showers are kept caulked and check drains and intake lines occasionally to assure that there are no hidden leaks occurring.
5. Keep an eye open for any unusual changes in the walls or ceilings, since these could be signs of attic or roof leaks occurring.

Note:

To our knowledge, no sampling for asbestos-containing material or lead based paint has been conducted in the residence. We recommend that testing be performed prior to any remedial if this home is older than 1979. Testing would show which if any, affected building materials might contain asbestos or lead and the remediation contractor should comply with all OSHA and EPA regulations regarding worker protection.

If you have any questions regarding the above information, do not hesitate to call me.

Signed,



Fernando Martinez, President
Licensed Mold Assessment Company



Fernando Martinez



Elissa L. Martinez



Wendy Matson Martinez

TREC Professional
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Professional Mold
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Services
Apprentice TREC
Inspector #10490

TREC Licensed Home
Inspector #3666
Certified Stucco Inspector
EDI
Professional Mold
Assessment Consultant
#1136
By Texas Department of
State Health Services

Member of Indoor Air Quality Association

Member of BBB

Recommended by Angie's List, 2007, 2008, 2009 , 2010, 2011 and 2012, 2013, 2014
"Super Service Award"

Email address: homeinspector@swbell.net

You can learn more about us and our equipment on our websites:

www.moldconsultanttx.com



Our investigative tools:

Delmhorst BD2100 Moisture Detector

Note: The green, yellow and red indicators on the Delmhorst are visual indicators only and only have meaning during testing.

Note that the Delmhorst is re-calibrated at every inspection, often between readings. It is tested on walls in house to predetermine a standard. The above chart has been gleaned from product literature and other relevant information and formulated into a "chart" by the inspector.

The Delmhorst BD2100 uses state-of-the-art "pin" type technology and are the only sure way to obtain three key pieces of information quickly and accurately: the moisture gradient (the difference between the shell and core moisture), an estimate of the average moisture content, and the range of moisture content. Pin-type meters operate on the principle of electrical resistance; they use the wood or other surface as an element in a circuit by driving two pins or electrodes into it. This method works because moisture is an excellent conductor of electricity and dry wood is an effective insulator.

From "Measuring Wood Moisture: Straight Talk From Delmhorst", published 1994

TRAMEX Moisture Encounter Plus

The instrument measures the electrical impedance of the sample by creating a low frequency alternating electric field between the electrodes. This field penetrates under tests to the depth of approx. 1 ¼” (30 mm). The very small alternating current flowing through the field is inversely proportional to the impedance to the material. The instrument detects this current, detects its amplitude and after processing, drives the pointer to the moving coil meter to the computed moisture value.

Zefon Bio-pump – air testing pump

The Zefon Bio-Pump® Plus is the smallest and lightest portable battery powered IAQ sampling pump available. It provides the simplest and most convenient way to sample with Air-O-Cell® and Via-Cell® cassettes at a flow rate of 15LPM.

Flir B-200 Professional Grade Infra-red Camera

An infrared camera is a non-contact device that detects infrared energy (heat) and converts it into an electronic signal, which is then processed to produce a thermal image on a video monitor and perform temperature calculations. Heat sensed by an infrared camera can be very precisely quantified, or measured, allowing you to not only monitor thermal performance, but also identify and evaluate the relative severity of heat-related problems

Note that this gives the best results if the home is heated or cooled in accordance with the outside air temperature so that the greatest temperature difference is achieved.