Environmental Inspection Dynamics LLC

July 15, 2023

Client: James & Janet Smith

Subject Property: 1234 Common Dr., Somewhere, IL 60000

Via E-mail @: **JanJsmith@findus.com**

Mold Inspection Narrative

Report # Smith 71523 - MI

Time of Inspection: 10:30AM, Weather: Warm-Humid, Sunny Temperature: approx. 85° F., Completion: 12:30PM

After a visual inspection at the above residence there are considerable *"Red Flags"* of concern. Along with the visual inspection we employed the use of the following: *Tramex* surface moisture meter, *Delmhorst* probe type moisture meter, *Delmhorst* hygrometer, *Raytech* radiometric temperature gun, *FLIR E54* thermal imager and associated digital visual images. Structurally the property is a two-story with hip and gable multi-integrated roofs, brick veneer at front, aluminum/vinyl siding/trim at back and sides, frame construction, with a deep poured concrete foundation, on a city incorporated back/side drop lot. Estimated age, 23 years. The property appears maintained both outside and inside. Property faces East. (SEE PIC. REFERENCES ATTACHED "Subject Property Views) Our client requested a certified mold inspection due to health concerns for their children. Client contracted for (3) three air spore traps. We executed the (3) three air spore trap samplings as follows: (1) In the Front Bedroom, (1) In the Main Basement Area and (1) outside control baseline sample. The results of the air spore trap samplings will come via **MoldREPORT** from **Eurofins EMLabs P&K** under separate cover.

From the exterior visual inspection-assessment, we observed *"Red Flags"* of concern. The roof attic-assemblies appear to have some balanced ventilation. At the rear west east side, there is a patio slab that is pitched and sunken toward the foundation. Suggest mud-jacking to achieve positive pitch away from foundation. There are several areas around the foundation that the grade level is pitched and sunken toward the foundation. Suggest re-grading away from the foundation. At the rear some foliage is grown and in contact with structure. This can induce moisture and insects into the structure. Suggest removal. There are several breach points in/at the siding. These are entrance ports for bees and wasps. Suggest caulking all visible breach points with high grade silicone caulk. We noted that the escape window-well was open. We suggest solid type covers and not opening windows for ventilation into basements. The covers not only prevent heavy rain waters from washing in down the siding, they also protect children and animals from falling in. It is also a prime break-in entry point. Opening basement windows for ventilation will allow more unwanted moisture and humidity to enter into cool basement areas and create conditions conducive for microbial growth.

These above issues can impact the perimeter drain tile system and create seepage into the basement. (SEE PIC. REFERENCE ATTACHED "Subject Property Views & Exterior Concerns & Issues 1.")

At the front, we noted several concerns that can have a "cause and effect" on interior areas. The first is that the front porch slab is both pitched toward the wall/foundation and also has a swale at the middle post. There is a life/safety issue where the front entry is, which may cause a person to stumble on egress. We strongly suggest that the slab be mud jacked back into proper position. It appears from a front view point that the apron roof over the porch has a sag point at the middle support post. The second is where the flashing transition to the siding occurs. We observed several points where the flashing is lifted off the roofing. This allows wind driven rains to enter the front wall assembly. (SEE PIC. REFERENCE ATTACHED "Exterior Concerns & Issues 2.")

In our inspection and assessment of the Main Attic, viewed from the access area, we noted existing blown-in fiber glass insulation. This is considered an "unconditioned" attic. There does not appear to be visual microbial growth occurring on the roof sheathing or the frame work within the attic. We could not determine if the existing bathroom exhaust fans are vented properly to the outside. Of minor concern is for the existing powered attic ventilator as this may be causing a "short cycling" event and not allowing for full "balanced" flow through attic ventilation. The recorded temperatures within the attic ranged from 103° F. to 106° F. For better air flow, we suggest adding continuous soffit ventilation with more rafter pocket insulation ventilation baffles (*Provents-Durovents)* and adding more ridge can vents or continuous ridge venting. If proper **"balanced"** soffit and ridge venting were employed it would remove more heat and potential moisture build-ups. For further information on this subject, please visit this website: **http://www.ronhungarter.com/ridge_vents.html** This is a great site with excellent picture details on venting both "conditioned" and "unconditioned" attics: **https://buildingscience.com/sites/default/files/migrate/pdf/PA_Crash_Course_Roof_Venting_FHB.pdf**
(SEE PIC. REFERENCE ATTACHED "Attic Picture Array and Roof-Attic Assembly Observations")

In the interior we executed comparative value surface moisture meter scans around accessible interior side fenestrations, and on the floors near water using fixtures and appliances. Surface and probe type moisture meters have an electrical impedance sensing depth of approximately 1 to 1 ¼". Most of the time, negative findings were returned. Drywall typically should be at 0 to 10% maximum MC (moisture content). The area where positive moisture meter returns were was at the Front Bedroom and Two-Story Foyer windows are located. In addition to the moisture meter, we employed the thermal imager. The moisture meter reading at the Front Bedroom window was at 90% MC. The Foyer window was inaccessible due to height. The thermal image of these areas returned amorphous shaped anomalies associated with deep latent moisture. These potential moisture intrusions may be the "effect" side of the "cause and effect" concerns we noted on "Exterior Concerns & Issues 2.". Suggest having a qualified window and siding contractor review, evaluate and remedy as needed. (SEE PIC. REFERENCES ATTACHED "Interior Issues 1. & 2.")

The other noted area of concern is in the Hall Bathroom. We executed comparative value surface type moisture meter samplings on the ceramic floor tile. The return at the rear of the toilet base was at +45% MC. We feel that the toilet wax ring seal is failing. Suggest proper replacement. The other area is at the floor tile to tub transition. The return at the tub base was at +60% MC. This area is small, but we suggest silicon caulking that transition. In most of the vanities we noted that the through-wall plumbing runs are not properly sealed. Suggest sealing with caulking, as unwanted air will be "stack effect" drawn into the interstitial plumbing wall run pockets. (SEE PIC. REFERENCES ATTACHED "Interior Issues 3.")

There were some *"Red Flags"* of concern that are occurring in the Basement areas. In the sump pump closet, of the Main Basement area we noted that the existing sump pump does not have a gas tight cover. All sump pumps should have gas tight covers. Open sumps can emit microbial aerosols and unwanted extra moisture.

In the Utilities Room we noted a visual active seepage event occurring. In on the drywall and carpet in the Main Basement Room we noted what we consider an extension of the active seepage event occurring. We executed both surface and probe type moisture meter comparative samplings. The surface meter on the drywall returned at 45% MC and the probe meter on the carpet returned +100% MC. In addition, we took a thermal image of this area. The image supports the both meter findings, as moisture is prevalent in these areas. Suggest having a qualified basement damp proofing contractor review, evaluate and remedy. This again this may be the "effect" side of the "cause and effect" concerns we noted on "Exterior Concerns & Issues 1." (SEE PIC. REFERENCES ATTACHED "Interior Issues 4.& 5.")

In our basement observations we noted the exposed insulated exterior walls in the basement have what appears to be impermeable plastic vapor barrier. These walls need to be able to dry to the interior and exterior. For more information on this, visit this website: **https://buildingscience.com/documents/digests/bsd-106-understanding-vapor-barriers** We noted that interior constructed basement walls are positioned well away from the concreted foundation walls. This proper as it allows for air circulation. On the existing furnace we suggest incorporating "S" or "P" traps for the AC condensate and humidifier lines. The traps will prevent siphoning air out of the floor drain. It also prevents HVAC air delivery loss. We suggest taping all accessible HVAC return and supply ducts with UL-181B-FX foil tape. The return side of the HVAC is under negative pressure and will therefore suck in dirt and unwanted microbial aerosols. It also reduces thermal loss/gains while operating. New ASHRAE codes now require this. (SEE PIC. REFERENCE ATTACHED "Basement Observations.")

The averaged interior hygrometer reading was RH: @ 51.0%, Temp: 77.3º F. This is in near normal range for indoor mid-summer humidity. Do note that Midwest weather has had extreme swings and changes occurring. This effects the control of indoor conditions. (ASHRAE recommends 30-60%) Mechanical dehumidification is always recommended if interior RH gets high, especially in basements or lower levels. Please do note that indoor humidity levels however, should never exceed 25% RH during the extreme cold days of winter (0 degrees and below) as this will cause ice-ups and ice damming within exterior walls/ceilings, and thus create subsequent delitescent microbial growth on the inside of the dry walled ceilings and walls. We suggest not installing wall-to-wall carpets over un-insulated below grade concrete slabs. Carpets on these slabs are cold, thus creating a higher relative humidity within, and conducive conditions for dust mites and mold growth can follow. The microbial contamination they (carpets) can harbor, are difficult at best to thoroughly sanitize. Suggest removing carpet and installing hard surface flooring with area rugs for comfort. If carpet is favored, then a raised floor system should be installed. For more information on products for raised basement floors, visit this website: **https://www.mateflex.com/home-business/basements/**
ALSO SEE ("Basement Summer Effects & Chasing the Moisture")

For understanding how moisture relates and impacts structures, and for more information before any renovations or repairs are executed, see this website**: http://www.buildingscience.com/documents/guides-and-manuals/gm-read-this-before-you-design-build-renovate/view?searchterm=before** **This is excellent information!**

It must be understood that at the time of this inspection/assessment/consultation, other areas of moisture intrusion and subsequent microbial growth can exist that are hidden and cannot be visually inspected. This inspection, point specific assessment, consultation, written or verbal, is based on a visual review of the accessible above-mentioned areas and at a one-time event. This inspection/assessment/consultation does *not* constitute a WARRANTY, INSURANCE POLICY, OR GUARANTEE OF ANY KIND, and NOR DOES IT SUBSTITUTE FOR SELLERS DISCLOSURE. All structures must be continually monitored for moisture intrusion. Chronic moisture conditions are the primary reason and requirement for microbial (mold) growth to occur.

Inspected by: Kevin M. Cuyler Inspection Date: 07/15/23 **CIAQT**

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