

BUILDING DYNAMICS, LLC

www.building-dynamics.com

INDUSTRIAL HYGIENE

1216 Ashton Road
Ashton, MD 20861
240.899.6926 (mobile)
elight@building-dynamics.com



HVAC ENGINEERING

703.963.0824 (mobile)
jbailey@building-dynamics.com

GLENWOOD MIDDLE SCHOOL: MOLD INVESTIGATION PROGRESS REPORT

November 24, 2015 (DRAFT)

Prepared by: Ed Light, CIH

Prepared for: Howard County Public School System

Building Dynamics, LLC (BDL) was requested by Howard County Public School System (HCPSS) to assess environmental conditions and humidity control at Glenwood Middle School (GMS). BDL's scope of work includes:

1. Review related documentation (mold identification, testing and remediation, IAQ investigations, health concerns, etc.).
2. Evaluate mold growth episodes as to cause, impact, effectiveness of corrective measures and the potential for future reoccurrence.
3. Conduct a comprehensive building inspection, including crawl spaces and above ceilings.
4. Assess health risks by investigating reported cases of building related symptoms, reviewing Health Room documentation and interviewing staff.
5. Complete an engineering review of HVAC design, operations and maintenance with a focus on system operation during past mold episodes and current humidity control by the new HVAC system
6. Recommend actions to correct any observed deficiencies and to ensure that environmental conditions remain safe.

This is a progress report summarizing BDL's findings to date on several specific issues. BDL is completing the comprehensive assessment of building and health issues and will issue draft findings and recommendations next week for review and comment.

Investigation of Specific Concerns.

Portable 20

BDL inspected Portable #20 on October 21, 2015 in response to a parent complaint and found the following:

- The portable was overall in good condition, dry and free of visible mold growth.
- Minor suspect growth was observed sealed behind wall surfaces and there was particulate buildup in the air conditioner. These conditions are typically found upon close inspection of many school portables and are not considered an exposure hazard.
- When surface coverings were pulled back, several square inches of suspect growth was observed under a baseboard and under laminate surrounding a window. These areas were dry, suggesting that leaks had been repaired in the past, but that mold was left below the surface. Occupant are not exposed to dry mold sealed behind surfaces.
- The teacher reported that the portable is uncomfortable on very cold winter days (insufficient heating) and the parent reported an occasional odor in the portable during cooling season. Both of these conditions could be caused by particulate buildup in the AC coil and drain pan.
- Rust stains were present on the two rear windows associated with deteriorated framing.

BDL made the following recommendations to HCPSS Building Services-

1. Wipe suspect spotting behind rear cove base and on under the side window veneer with a disinfectant.
2. Clean and sanitize the AC coil and drain pan.
3. Check the windows and repair any deficiencies.
4. Re-inspect after a rain to ensure there is no ongoing leakage.

This work was accomplished by HCPSS and the portable has been restored to pre-existing condition.

Band Room

A parent attributed their student's symptoms to mold on wall insulation and the carpet in the Band Room. BDL inspected on October 22. No suspect growth was observed. Removal of the wall insulation and carpet is not necessary. Wall insulation is periodically vacuumed for dust, and removal will adversely impact acoustics. The carpet had localized water damage in the past from a condensate backup. However this was repaired and sanitized.

Chair Testing

This fall, GMS parents claimed that mold was growing on several items in the school (a plastic bin, two books, cloth-backed chairs in storage and inside a glue stick). These surfaces were sampled for mold growth by Aria Environmental, Inc. The plastic bin and chairs tested negative (no mold growth). There were small mold spots inside the glue stick, unlikely to be building-related. There was localized mold growth on the books. The books had been located near a window, and the mold appeared to be from water damage, not building humidity.

Roof Leaks

Following installation of the new HVAC system this summer, several rain leaks were noted around ductwork going through the roof. Wet ceiling tiles were changed and these areas dried out before mold could start to grow (surfaces generally need to stay wet for several days before mold growth initiates). HCPSS reports that these penetrations have all been sealed. No new stained ceiling tiles have been observed since that time.

Gym Ceiling.

In response to parent concern, on November 13, 2015, BDL used an HCPSS lift to inspect the GMS gym ceiling in an area where gypsum panels under the roof were discolored. These were evaluated for indicators of excess moisture and suspect growth following procedures consistent with ASTM D7338-10, Standard Guide for Assessment of Fungal Growth in Buildings.

Visual observation found water stains on 8 ceiling panels, with no suspect growth. Moisture meter readings found surfaces to be dry. Staining appeared to be the result of a roof leak. It had rained within several days of the inspection, indicating that the roof was no longer leaking, and that repairs had been successful.

At the request of HCPSS, BDL also collected a tape lift sample of the stained ceiling panel surface for analysis to determine whether mold growth structures were present. The sample was analyzed by optical microscopy at Aerobiology Laboratories and tested negative (no hyphae or mycelia detected). This finding suggests that the panels dried before mold growth could occur.

The panels appeared to be structurally sound and can be left in place. As a precaution, BDL recommends that water-stained surfaces be wiped with a sanitizing solution (i.e., 10% bleach), dried, and then sealed (i.e., with Kilz).

BDL President, Ed Light, CIH, *holds degrees in Environmental Science from the University of Massachusetts (B.S.) and Marshall University (M.S.), is a Senior Fellow of the American Industrial Hygiene Association, has authored over 40 scientific publications on assessment and control of the indoor environment and chaired several national scientific committees. In the 1980s, Mr. Light established the West Virginia Department of Health IAQ Program, pioneering efforts to resolve exposure issues related to formaldehyde, asbestos, and termiticides. In the 1990's, he developed widely used protocols for addressing IEQ complaints (published by EPA, NIOSH and ISIAQ) and managing air quality in occupied buildings under construction (now an ANSI standard). As a consultant, Mr. Light has directed more than 1000 multi-disciplinary IEQ investigations, ranging from the White House to the South Pole Station.*