

School/Facility: Worthington Elementary
Location: Room 196A
Date of IEQ Report Form: December 5, 2017 (work order #52560)
December 6, 2017 (IEQ Concern Form)
Date(s) Investigated: December 13, 2017
Date of Report: March 2, 2018

IEQ Concern:

An individual experiencing a health symptom that has been persistent and progressing. The individual requested mold testing.

IEQ Investigation Process:

Identify deficiencies that may impact IEQ and/or sources of odor concerns. Typically includes the following depending on the nature of concern, but not limited to:

- interview/questionnaire of concerned individual(s)
- inspection above the drop ceiling (condition of roof deck, pipe insulation, return air plenum)
- inspection of ventilation system (operation of variable air volume box and outdoor air dampers, check controls, measurements of carbon dioxide, temperature and relative humidity, sources near outdoor air intake, measure return and supply air volume, cleanliness of coils, liner and condensate pan)
- inspection of exterior
- inspection below drop ceiling (housekeeping, sink and floor drain traps, signs of past and present moisture concern via visual and/or moisture meter, mold growth, ensure connection of current and capping of abandoned sanitary vents, odorizers, excessive plants and fabric items, identify potential pathways, and measure volatile organic compounds, carbon monoxide, and lighting)

Findings:

- 195A and 196A were part of the investigation since the rooms are not completely isolated from one another.
- Room 195A had tempera paints out, and an associated paint odor was observed within the room.
- A few fabric chairs and / or fabric coverings over wood chairs were observed in both rooms.
- The thermostats in both rooms were partially obstructed by materials. This may provide a false sense of the room temperature, thus possibly cause thermal discomfort within the rooms.
- The air supply diffusers in both rooms had some particulate accumulation on the metal fins (corners).

- The carpets were dry as determined by the use of a moisture probe. Sand from a sandbox was found on / in the carpet of 196A. Moisture concerns were not observed on the back side of carpet where slices were made and peeled back in both rooms near the door / window which had experienced past leaks.
- The ventilation unit serving the classrooms had moderate foliage accumulating not too far from the unit's outdoor air intake.
- The ventilation unit's return fan was not operating.
- A safety matter was observed above the drop ceiling in 196A. Two cement blocks were loose atop of the partition wall to the right of the room's sink counter.

Corrective Actions:

- School administration is to inquire if the fabric chairs or fabric chair coverings are necessary. If determined acceptable, school administration is to inform staff and ensure the items are periodically cleaned and/or laundered. Otherwise they should be removed from the classroom as a process of elimination.
- School administration is to inform staff not to obstruct the space surrounding the classroom's thermostat.
- School administration is to inform custodial staff to periodically clean the exterior portion of the air supply diffusers.
- Per work order 53702, Building Services found the ventilation unit's return fan drive control in the off position and turned back on.
- Per work order 53706, Building Services removed foliage around the outdoor air intake of the ventilation unit and unclogged a nearby roof drain.
- Per work order 53708, Building Services reset the cement blocks using high strength adhesive.

Regarding Indoor Sampling for Fungal Spores:

There are no established health-based standards for acceptable levels of mold/fungi in indoor air. The concern is experiencing chronic/excessive moisture within the indoor environment which promotes mold amplification. The National Institute of Occupational Safety and Health (NIOSH) encourages detection of mold impacted materials by "visual inspections" (to include the use of moisture meters and thermal infrared cameras) "and detection via musty/moldy odors." In general, a thorough physical assessment is more reliable than air sampling.

Microbiological matter is ubiquitous within our outdoor and indoor environments and their concentrations can vary naturally overtime. NIOSH does not recommend air sampling for mold because "air concentrations of molds cannot be interpreted with regard to health risks." The United States Environmental Protection Agency (EPA) echoes this statement by indicating that because "no EPA or other federal limits have been set for mold or mold spores, sampling cannot be used to check a building's compliance with federal mold standards." According to the American Industrial Hygiene Association, the establishment of a federal threshold or regulatory level for mold is unlikely in the near future because it cannot be justified scientifically with the information currently available. "There are many unresolved issues

related to air sampling and mold health effects that need additional research before a level could be set (AIHA).”