

ODOR INVESTIGATION

**Mary L. Fonseca Elementary School
160 Wall Street
Fall River, Massachusetts**



Prepared by:
Massachusetts Department of Public Health
Bureau of Environmental Health
Indoor Air Quality Program
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Background/Introduction

In response to a request by Joe Correia, Director of Administrative and Environmental Services, Fall River Public Schools, the Massachusetts Department of Public Health (MDPH), Bureau of Environmental Health (BEH) provided assistance and consultation regarding indoor air quality (IAQ) at the Mary L. Fonseca Elementary School (FES), 160 Wall Street, Fall River, Massachusetts. On November 7, 2011, Cory Holmes, Environmental Analyst/Regional Inspector in BEH's IAQ Program visited the FES to conduct an assessment. Mr. Holmes was accompanied by Mr. Correia during the assessment. The request was prompted by concerns of musty odors in first floor classroom 135 and to a lesser extent, adjacent classroom 139. Mr. Holmes returned on December 30, 2011, accompanied by Mike Feeney, Director of BEH's IAQ Program to conduct further evaluation.

Methods

BEH staff performed visual inspection of building materials for water damage and/or microbial growth and examined the building for the presence of odors and/or other environmental concerns. Classrooms were not occupied at the time the evaluation was conducted.

Results and Discussion

Upon entry into classroom 135 a slight musty odor could be detected. The odor was noticeably more potent towards the rear right corner of the classroom where the fan coil unit (FCU) was located (Picture 1). When a FCU is activated it draws air from the classroom,

heats/cools, filters, and distributes the air back into the classroom ([Figure 1](#)). BEH noted a space around the condensation pipe in the rear wall behind the FCU cabinet (Picture 2), which could serve as a pathway for musty odors from the wall cavity into the FCU. At the time of the assessment, BEH recommended that this breach be sealed.

As mentioned, occasional odors were also reported in adjacent classroom 139. Upon examination, a space in the wall between classrooms for pipes connecting the two FCUs was observed. If odors are drawn into the FCU in classroom 135 they would also be present, albeit to a lesser extent, in classroom 139.

In subsequent correspondence with Mr. Correia, he reported that the FCU in classroom 135 had been removed and several other breaches in the concrete wall and floor were discovered and sealed. As previously mentioned, these breaches in the floor and wall can serve as pathways for odors to be drawn into the FCU and distributed into the classroom.

Although these breaches had been sealed, the odors reoccurred, prompting the second site visit from BEH staff. On December 30, 2011, Mr. Feeney and Mr. Holmes evaluated the FCU drainage pipes, as well as the rooftop drainage system, as potential causes of odors and eliminated them both as the source. The most likely source of moisture creating odors appeared to be related to window leaks. When the windowsill near the FCU was removed, water-damaged wood was observed (Picture 3). The water damage appeared to be the result of missing/damaged caulking around the window frame (Picture 4). If windows are not properly sealed they can allow wind-driven rain in and allow moisture infiltration during humid months. Also noted were dark spots, possibly mold growth, on the underside of particle board trim around the FCU (Picture 5), which may be a contributor to the odors noted.

The US Environmental Protection Agency (US EPA) and the American Conference of Governmental Industrial Hygienists (ACGIH) recommends that porous materials be dried with fans and heating within 24 to 48 hours of becoming wet (US EPA, 2001; ACGIH, 1989). If porous materials are not dried within this time frame, mold growth may occur. Water-damaged porous materials cannot be adequately cleaned to remove mold growth. The application of a mildewcide to moldy porous materials is not recommended.

Conclusions/Recommendations

At the time of the assessment, the following recommendations were made:

1. Reseal around window pane/frame to prevent leaks/moisture infiltration.
2. Remove/replace all water-damaged wood around window and FCU.
3. Contact BEH IAQ Program if further investigation is needed.

References

ACGIH. 1989. Guidelines for the Assessment of Bioaerosols in the Indoor Environment. American Conference of Governmental Industrial Hygienists, Cincinnati, OH.

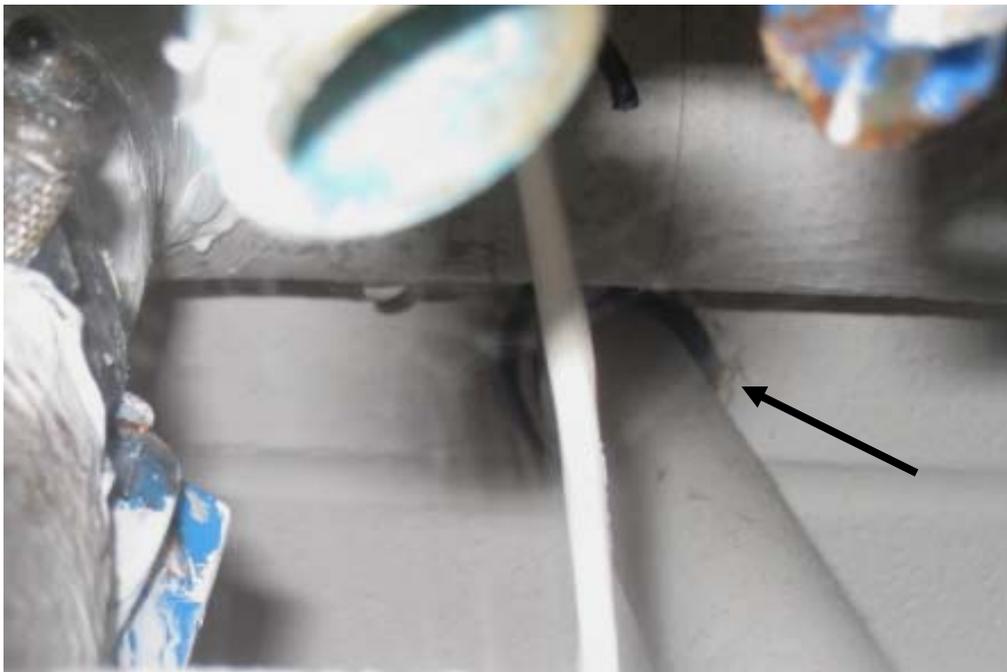
US EPA. 2001. "Mold Remediation in Schools and Commercial Buildings". Office of Air and Radiation, Indoor Environments Division, Washington, DC. EPA 402-K-01-001. March 2001. Available at: http://www.epa.gov/iaq/molds/mold_remediation.html

Picture 1



Fan Coil Unit in Right Rear Corner of Classroom 135

Picture 2



Space around Condensate Pipe in Rear Wall behind Fan Coil Unit Cabinet

Picture 3



Water-Damaged Wood beneath Window Sill in Classroom 135

Picture 4



Window Sill Removed Exposing Missing/Damaged Sealant around Window Frame in Classroom 135

Picture 5



**Dark Spots Observed on the Underside of Particle Board Trim
Adjacent to Fan Coil Unit in Classroom 135**