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Evaluation of Indoor Environmental Quality [IEQ] at the JB Kelly E.S.

Evaluation Conducted by:

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Evaluation Date: 11.25.2015

Summary

In November 2015, the PFTH&WF/U-H&S received a request to conduct an IEQ evaluation to investigate Indoor Environmental Quality [IEQ] & building-related health symptoms & illness among school staff at the JB Kelly E.S.

Our investigation revealed significant building condition deficiencies & occupant health impacts including, but not limited to:

- Mold growth on musical instrument cases, chairs, desks, tables & pipe Insulation;
- 2) Dirty classroom unit ventilators [CUVs] and air filters;
- 3) Mold-contaminated & unusable music/band instrument rooms;
- 4) Serious occupant respiratory illness possibly related to inschool conditions; &
- 5) Systemic problems with the assessment, evaluation, reporting and response to identified problems

Further evaluation is required to protect occupant safety & health

In November, 2015, PFTH&WF/U-H&S received a request from educational staff regarding inadequate air quality issues related to dirty ventilation system filters and system components. We were also told about visible mold at the JB Kelly E.S. Additionally, reports of adverse respiratory symptoms and illness believed to be related to deficient indoor air quality [IAQ] conditions were also reported.

On 11/25/2015, environmental science inspectors from the PFTH&WF/U-H&S and SDP-OEMS conducted a joint observational site visit. We spoke with the music teacher [two other music/instrumental teachers were out of the building at the time of our evaluation] and with the school building engineer & conducted a targeted, limited inspection of the:

- Music Room &
- Dressing Rooms A, B, C, & D string/wind instrument rooms

We documented conditions present at the time of our visit by taking photographs and we also reviewed provided photographs and interviewed the music teacher and building engineer. We found direct evidence of:

- Dirty ventilation system components & filters in the music room;
- Visible mold growth in Rooms A, B, C & D on pipe insulation, musical instrument cases, inside and on top of desks, tables and chairs; &
- Excessively cold temperatures in the music room and Dressing/Instrument rooms;

The SDP-OEMS inspector agreed with us about the nature and extent of the damage and the need for prompt remediation and additional evaluation of building areas.

Background

JB Kelly is a 2 story, K-5 E.S. located at 5116 Pulaski Ave. constructed in 1970. There are approximately 650 students enrolled at the school and more than 40 educational, administrative, building engineering/custodial, and support staff. The school principal is Christopher Byrd and the current building engineer is Todd Greene.

The 11062015 IEQ Dashboard Master [the most recent one provided to us the by PSD-OEMS] included findings from previous OEMS reports issued in March and October of 2015 [limited/no information had previously been provided to PFTH&WF/U-H&S].

Listed findings were only included for room 111 [3/2015] and for room 103 [10/2015]:

- In March, 2015, SDP-OEMS inspected classroom 111 and found that **mold** was present on pipe insulation above the ceilings;
- In October, 2015, SDP-OEMS inspected room 103 with the following findings reported:
 - Dirty ventilation system components and filters;
 - **Mouse droppings** were documented on the inside of the classroom unit ventilator & in a piece of classroom furniture
 - **60 feet of visible mold growth** was observed on pipe insulation located above the classroom ceiling.

Visible mold and rodent droppings are well-recognized asthma triggers.

A likely root cause for the problems noted above was given as condensation from chilled water lines used as part of the air conditioning system. However, it appears as comprehensive evaluation of HVAC, mold, rodent infestation and/or related deficient environmental building conditions in any other school areas was not conducted prior to our joint 11/25/2015 assessment and that, at least as of 10/27/2015, the mold growth in room 103 had not yet been addressed.

On 10/30/2015 PFTH&WF/U-H&S reported a concern to SDP-OEMS about a possible bedbug infestation at the school. SDP-OEMS responded by stating that they had "been advised of a concern" a week or so prior to our inquiry without SDP-OEMS having notified PFTH&WF/U-H&S about the issue. SDP-OEMS also stated that SDP-Pest Management visited the school and that information, including the SDP's bedbug response procedures, was provided to the school principal.

Of particular relevance re: bedbug response, as per the SDP procedure, is the following:

- "Pesticides will NOT be applied in any child-accessible areas" and
- "Environmental intervention may involve HEPA vacuum, steam, heat, and, if appropriate, the use of certain dusts or other pesticides inside of walls and other areas inaccessible to the children."

Evaluation Approaches & Methodology

Following the receipt of a concern from the JB Kelly music teacher, PFTH&WF/U-H&S contacted the SDP-OEMS to notify them for the purposes of coordinating and scheduling a joint visit to the school which was then conducted on 11/25/2015 by Jerry Roseman, on behalf of the PFTH&WF/U-H&S, accompanied by Brian Joseph, Keating Environmental, on behalf of the SDP-OEMS.

On arrival at the school we introduced ourselves at the office and then spoke with the building engineer [BE]. He informed us that he was new to the building and had been assigned only about 3 days earlier and that he was still learning about the building systems and building conditions. No "hand off" information, summaries, or related background materials [e.g. IEQ Dashboards, list of ongoing problems and issues, or similar] about the building conditions and/or systems was reported to have been provided to the BE.

We explained that we had received a health-related concern from the music room teacher and been asked to conduct a site visit related to the condition of filters in some of the school CUVs. [Photo 1 represents the air filter removed from the CUV in classroom]. The BE told us that he was informed about the dirty filter and that he replaced it and one other filter as well.

We then met with, and interviewed, the classroom music teacher. She has been at the school for six [6] – seven [7] years and reported that she had not previously experienced respiratory disease problems. During this school year, however, she had been experiencing severe respiratory illness/symptoms, including difficulty breathing while at school, and that she believed her symptoms were related to in-school environmental conditions. She also informed us that there had also been a major bed bug issue at JB Kelly sometime between the beginning of the school year through about the middle of October that was addressed, at least to some degree, by spraying a pesticide/insecticide product in her classroom, and throughout other school areas both during periods of normal occupancy and, she thought, after school hours as well.

She stated that sometime in early October, following the spraying incident in her classroom, she had started to develop a persistent cough and that throughout the month, her respiratory status worsened and that by the end of October she began experiencing much more serious shortness of breath and difficulty breathing. She reported that her respiratory symptoms would typically worsen throughout the week, improving over the weekend and then, again, becoming increasingly severe as the week progressed. She started to receive medical care at the end of October including being prescribed an inhaler to use. She reported two [2] incidents during the first few weeks of November in which she had to seek medical care and she was required to be seen in the ER on both occasions. She has missed work because of her respiratory symptoms and stated that her breathing was much improved while away from school. On her return to school she has continued to experience respiratory symptoms and she is currently receiving medical care.

In addition to the spraying and air handling unit concerns, we were also informed that there was a serious mold problem in the musical instrumental/band [wind and string instrument] rooms designated as Dressing Rooms A, B, C & D located on either side of the auditorium stage. We were told that on their arrival back at school in September, music teachers noticed extensive mold growth on instrument cases and on surfaces in the instrument rooms. The school principal and building engineer were notified. In order to be able to use and distribute the instruments, the music teachers had to clean mold from some [all?] of the instrument cases [and instruments?]; they were then and provided to students.

Music instruction is not currently being held in the contaminated Dressing Rooms. This was approximately 6 weeks prior the SDP-OEMS evaluation in room 103 identifying mold about the ceilings in that classroom.

During out inspection we conducted a visual evaluation of the Music Room, Dressing Rooms A, B, C, & D, [Type text] [Type text] [Type text] documenting and photographing visible mold growth on musical instrument cases, pipe insulation, chairs, tables, and other materials in the rooms. Visible mold contamination was quantified for remediation purposes.

Brian Joseph, Keating Environmental Management consultant to SDP-OEMS, quantified the amount of mold present on various surfaces and, based on inspection findings, is expected to prepare a draft IEQ Dashboard and Mold DDC for response – these documents should be available and provided by 11/30/2015.

Discussion

The conditions reported, observed, and documented at JB Kelly require urgent and ongoing attention but also highlight systemic issues with training, oversight, management, reporting, and proper control of deficient building conditions and their impacts that should be promptly evaluated and addressed. These include:

1) Limited Inspection Scope[s] of the on-site evaluations conducted during the 2015-2016 school year - without more significant and timely follow-up, even in cases where evidence and identified problems suggest that school-wide issues may be occurring, is problematic from the standpoint of effective assessment and response sufficient to safeguard occupant safety and health

There were at least two [2] separate inspections conducted by PSD-OEMS over a 2-3 week period in October with findings related to IEQ deficiencies, visible mold growth, dirty ventilation system components and filters. With the conduct of our 11/25/2015 evaluation there are now several other areas with deficient conditions of a similar nature and scope to those documented in October.

2) Significant and Widespread Mold Growth was observed/reported to be present in the Music Dressing rooms by educational staff, building engineering and administrative staff at the beginning of the school year but was not brought to the attention of SDP-OEMS or others who could effect appropriate remediation.

Although mold contamination was observed and documented, with the most impacted areas closed off and remaining unused [from the beginning of the school year to the time of our visit], and music teachers [teaching wind and string instrumental music] having to use other areas for musical instruction, reporting of the condition to the FAC and/or to SDP-OEMS **was not** provided as required. Music teachers reportedly wiped down cases and then provided instruments to students without a full assessment of and remediation of the moldy conditions having been conducted.

3) Spraying for bed bugs occurred during periods of normal occupancy and with staff present – in at least some areas and during some of the time. This is in non-compliance with current SDP guidelines and directives and may have served as a trigger for the music teacher's respiratory illness.

4) Building engineering turnover [over the past few months] and related FAC support issues, may have contributed to challenges in ensuring a consistent understanding of, and response to, building condition deficiencies such as those described in this report. The lack of good, up-to-date and comprehensive documentation about mechanical systems, work-order status and related building condition issues, in connection with resource limitations results in difficulties in being able to respond effectively. This is likely to have played a role in the adequately assessing, reporting and responding to the exposure and environmental impacts experienced at JB Kelly during the current school year.

Report Highlights

What PFTH&WF/U-H&S Did

- We contacted SDP-OEMS to schedule a joint site visit.
- We conducted a "limited focused" assessment of the music room and band/practice rooms on 11.25.2015 with a PSD OEMS consultant.
- We interviewed educational staff & building engineering representatives about exposures, concerns & health impacts.
- We documented visible conditions and took photographs in/of multiple locations.
- We discussed/provided recommendations for effective and timely response & remediation.
- We described follow-up approaches including ensuring recommendation implementation, data/information sharing & communication about findings and recommendations

What We Found

- Significant, acute respiratory illness occurring over a period of approximately 2 months was reported by classroom teacher:
 - 2 Hospital ER visits were required from school -[during 11/2015] – potentially linked to in-school exposure & building-related environmental conditions &
 - Persistent respiratory symptoms and illness requiring ongoing medical evaluation & care.
- The classroom unit ventilator [CUV] in the music room was very dirty and, as reported, CUV air filters had been clogged with dust, dirt and debris and/or were missing.
- The school building engineer sprayed occupied classrooms, during periods of normal occupancy for bedbugs while teachers & students were in the areas
- Significant mold growth in instrumental/band rooms designated as Dressing Rooms A, B, C, & D, located on both sides of the school auditorium, was documented.
- We were informed that band instruments [and cases] had been impacted by extensive visible mold growth observed on the return to school in September, 2015;
- We were informed that visible mold growth had been cleaned from instruments & cases to the extent possible, by educational staff - instruments are now in the possession of, & being used by students.
- There have been several short-term, fill-in building engineers in the building over the past several months with the currently

Report Highlights

(continued)

Action Items include:

1) Immediate clean up of mold-contaminated surfaces is required;

2) Retrieval, assessment & decontamination of all musical instruments

3) Comprehensive, systematic assessment of all school areas to identify mold growth & HVAC/CUV deficiencies should be quickly conducted

4) Root cause evaluation and development of response actions

5) Improved training & management related to problem identification, reporting & response

6) Prepare a written summary approaches to help inform improved decision-making

7) Ensure transparency sharing of information, approaches & findings between SDP-OEMS and PFTH&WF/U-H&S in order to verify timely & effective implementation of response actions, and to ensure accountability and credibility

PFTH&WF/U Recommendations

<u>Short Term/Immediate Action Items</u>

- Immediately retrieve all musical instruments and cases that are in the possession of students and evaluate potential mold contamination & decontaminate as necessary;
- Remove all visible mold from surfaces indicated as "contaminated" in this report & in any/all additional reports from SDP-OEMS;
- Follow the methods & approaches used to address the mold contamination of musical instruments at Shawmont E.S. in 2012;
- Assess all school CUVs for filter status & unit cleanliness & address as necessary;
- Conduct comprehensive follow-up inspection activities in order to evaluate IEQ, moisture, dampness and mold problems throughout the school;
- Provide all inspection documents, findings, recommendations, DDCs, IEQ Dashboards, summary of planned and conducted remediation work with PFTH&WF/U-H&S representatives and building occupants;
- Coordinate, schedule & conduct joint follow-up assessment to facilitate verification & accountability or recommendation implementation

• Medium - Longer Term Action Items

- Determine the reasons that recognized mold contamination was not previously reported, evaluated & addressed [when first discovered and reported] & develop approaches to facilitate effective response.
- Ensure that no pesticides and/or other chemicals are applied during periods of normal occupancy;

Selected Photos



Photo 1: JB Kelly E.S. - 11.25.2015 - Music "Dressing Room D" - Mold Growth on Musical Instrument Case



Photo 2: JB Kelly E.S. - 11.25.2015 - Music "Dressing Room D" - Mold Growth on Musical Instrument Case



Photo 3: JB Kelly E.S. - 11.25.2015 - Classroom Unit Ventilator [CUV] - Dirty



Photo 4: JB Kelly E.S. - 11.25.2015 - CUV Filter



Photo 5: JB Kelly E.S. - 11.25.2015 - Music "Dressing Room D" - Mold Growth on Pipe Insulation



Photo 6: JB Kelly E.S. - 11.25.2015 - Music "Dressing Room D" - Mold Growth on Chair



Photo 7: JB Kelly E.S. - 11.25.2015 - Music Suite Closet - Mold Growth on/in Student Desks



Photo 8 JB Kelly E.S. 11.25.2015 - Music Suite Closet - Mold Growth on/in Student Desks [Close-Up]