

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
Bureau of Environmental Health Assessment
250 Washington Street, Boston, MA 02108-4619

ARGEO PAUL CELLUCCI
GOVERNOR

JANE SWIFT
LIEUTENANT GOVERNOR

WILLIAM D. O'LEARY
SECRETARY

HOWARD K. KOH, MD, MPH
COMMISSIONER

June 7, 2000

Judy Otto, Director
Community Development Department
Peabody Town Hall
24 Lowell Street
Peabody, MA 01960

Dear Ms. Otto:

As you know, the Bureau of Environmental Health Assessment (BEHA) conducted an evaluation of the indoor air quality at the Welch Elementary School on May 12, 2000. Michael Feeney, Chief of Emergency Response/Indoor Air Quality (ER/IAQ), BEHA, and Cory Holmes, BEHA conducted this inspection. Concerns about sand migrating from the development of a golf course (see Picture 1) into classrooms prompted this evaluation.

It appears that sand for leveling a green (see Picture 2) is located approximately 85 yards from the closest unit ventilator (univent) fresh air intake of this building and approximately 100 yards from the furthest univent fresh air intake. The sand is contained using a two-foot high barrier that appears to be made of felt (see Picture 3). This barrier seems to have been vandalized since the material is torn in a number of places.

Univents in the classrooms facing the golf course under construction were opened and examined. One univent had an accumulation of sand inside the casing (see Picture 4). The filter rack in this univent appears to be damaged which results in the filter not fitting flush. This condition creates spaces around the filter that allows fresh air drawn into the univent to bypass filters. Particulates may also bypass the filter resulting in sand penetrating into the univent. The exterior grounds of the school do not appear to have sand of a similar color or texture near univent fresh air intakes (see Picture 5). The color and texture of the sand appears to match the sand used on the green under construction on the golf course (see Picture 6). Therefore, it appears that the containment used around the green is not sufficient to contain sand during weather with southwest winds. On dry days,

strong southwesterly winds can blow sand from the green under construction to the school. With open windows, sand may enter the classrooms under these conditions.

A number of pathways exist for pollutants to move from the construction area into occupied spaces. These pathways indicate that the current containment fence is not sufficient to contain sand from the golf course. The following recommendations should be implemented in order to reduce the migration of renovation generated pollutants into occupied areas and to better understand the potential for mold to impact indoor air quality:

1. Examine and repair all filter racks in univents facing the golf course if filters do not fit flush.
2. Shutting down univents systems (when possible) during periods of heavy construction and demolition may be necessary to ensuring systems are isolated from entrain construction generated pollutants. Sealing ventilation openings with plastic and utilizing filters with a higher dust spot efficiency is recommended (SMACNA, 1995).
3. Wet the green sand twice a day (early morning and noon) to reduce aerosolization of sand.
4. Install a barrier made of a vandalism resistant material (such as nylon cloth used at construction sites) to contain sand. The barrier should be at least three feet in height and of sufficient length to block sand from migrating to the school building.
5. Limit the use of windows where possible, particularly during periods of times with southwest winds. In order to aid building occupants to judge wind direction at ground level, consider installing a temporary five feet high pole topped with a pennant. If the pennant points toward the building, windows should be closed until the wind direction shifts.
6. Establish communications between all parties involved with the construction site to prevent potential IAQ problems. Develop a forum for occupants to express concerns about renovations as well as a program to resolve IAQ issues.
7. Develop a notification system for building occupants immediately adjacent to construction activities to report construction related odors and/or dusts problems to the building administrator. Have these concerns relayed to the contractor in a manner to allow for a timely remediation of the problem.
8. When possible, schedule projects which produce large amounts of dusts, odors and emissions during unoccupied periods or periods of low occupancy.
9. Disseminate scheduling itinerary to all affected parties, this can be done in the form of meetings, newsletters or weekly bulletins.
10. If possible, relocate susceptible persons and those with pre-existing medical conditions (e.g., hypersensitivity, asthma) away from areas of construction.

We suggest that many of these steps be taken on any renovation project within a public building. A full report concerning the indoor air quality assessment is in preparation and will be forwarded to you upon completion. Please feel free to contact us at (617) 624-5757 if you are in need of further information or technical assistance.

Respectfully,

Suzanne K. Condon, Director
Bureau of Environmental Health Assessment

cc/ Mike Feeney, Chief, Emergency Response/Indoor Air Quality
Cory Holmes, BEHA
Elaine Krueger, Chief, Env. Tox.
Peter Torigian, Mayor, City of Peabody
Louis Perullo, Superintendent of Schools, Peabody Public Schools
George Collins, Bus. Mgr., Peabody Public Schools
Helen Apostolides, Principal, Welch Elementary School

References

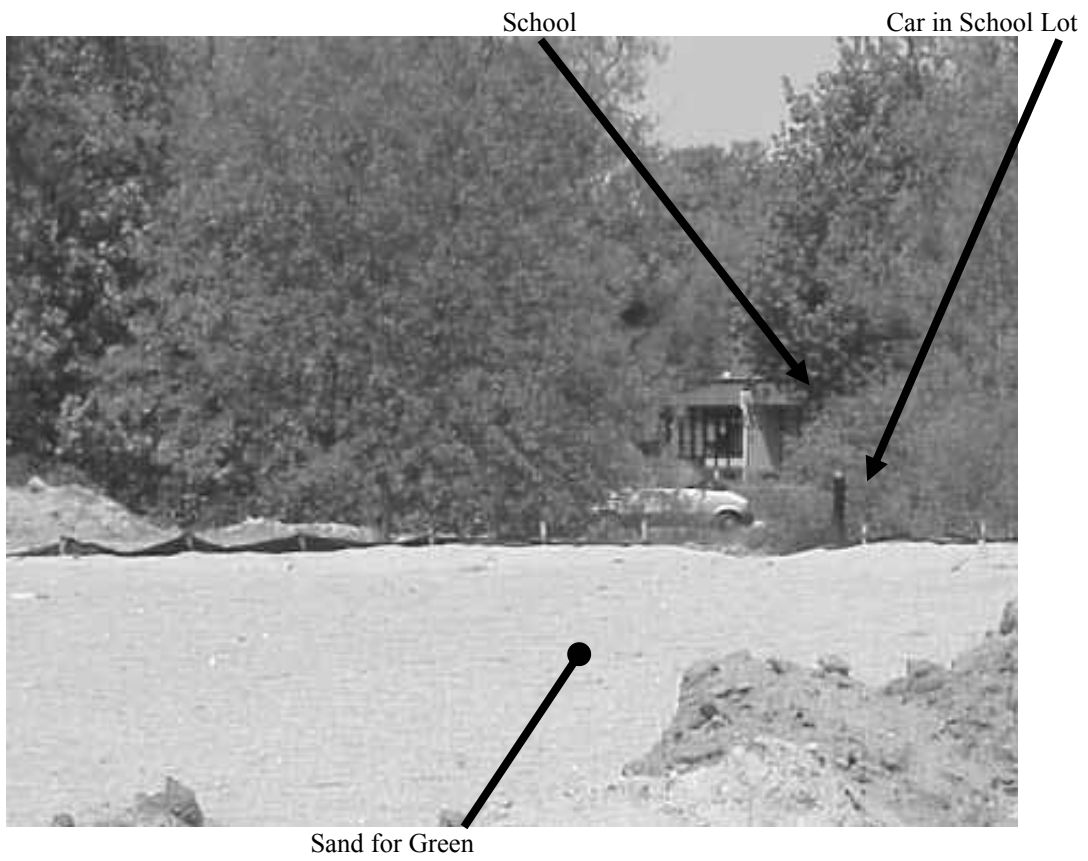
SMACNA. 1995. IAQ Guidelines for Occupied Buildings Under Construction. 1st ed. Sheet Metal and Air Conditioning Contractors' National Association, Inc., Chantilly, VA.

Picture 1



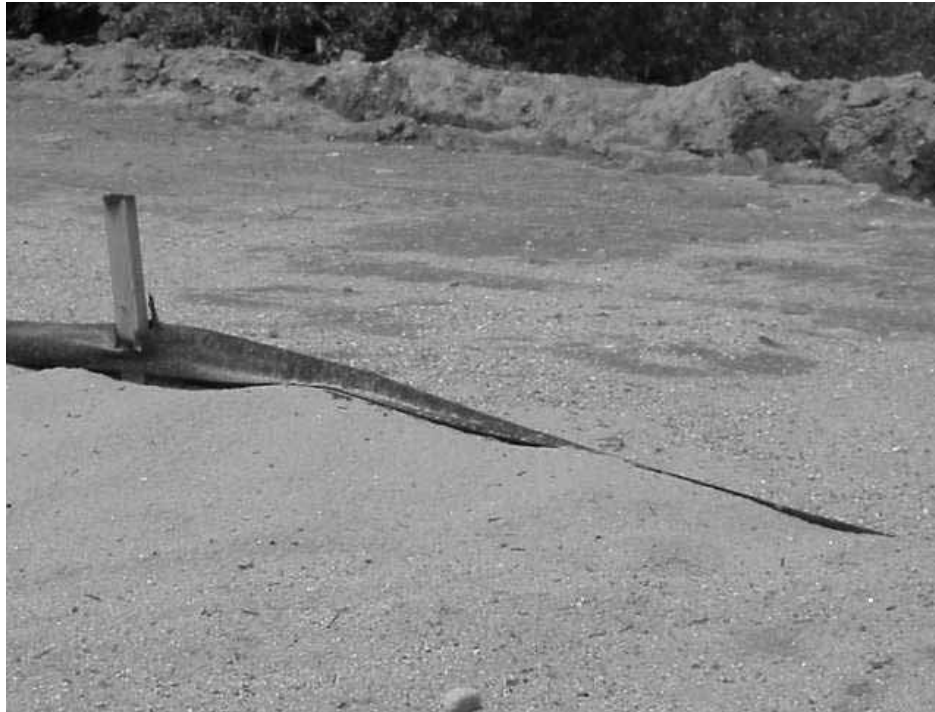
View from the Top of the Welch Elementary School Roof of Green under Construction on the Golf Course

Picture 2



Green under Construction and Its Proximity to School (~85 yards)

Picture 3



**Vandalized Felt Containment Barrier around Green under Construction,
Note the Height of the Wooden Stake and Tears in Felt**

Picture 4



Sand inside Univent Casing above Fan, Indicating Air By-Pass of Filter

Picture 5



Sand from Green under Construction

Picture 6



**Ground around Univent Fresh Air Intakes at the Front of the Building,
Note Lack of Loose Sand**