The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
Bureau of Environmental Health Assessment
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March 8, 2000

Jeanmarie Kent Joyce, Health Agent
Hanover Board of Health
550 Hanover Street
Hanover, MA 02339

Dear Ms. Joyce:

At your request, the Bureau of Environmental Health Assessment (BEHA) conducted an evaluation of the indoor air quality at the Cedar Elementary School on February 11, 2000. Michael Feeney, Chief of Emergency Response/Indoor Air Quality (ER/IAQ), BEHA, conducted this inspection. Concerns about pollutants generated by renovation efforts and the potential impact on occupied classrooms in this building prompted this request.

The school is currently under renovation while occupied by students, teachers and school staff. The planned renovations are to the library, gymnasium and the addition of a wing at the rear of the building.

Spaces in the temporary wall were observed. It is important to note that pollutants from renovation work could travel (see Pictures 1 through 3) through these spaces. Ceiling tiles in the hallway have been removed on the occupied side of the temporary wall as part of the renovations. None of the open spaces created by the lack of ceiling tiles have been sealed to prevent air movement above the ceiling tiles (see Figure 1). Dust and debris can move with drafts from the unoccupied construction section to occupied areas.

Access to the renovation area can be gained through a hallway door into the library (see Picture 4). This door was not sealed to prevent the migration of pollutants from the newly constructed wing into occupied areas of the school.

A number of pathways exist for pollutants to move from areas under renovation into occupied spaces. These pathways indicate that the temporary walls are not sufficient

to contain pollutants related to renovation work. 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. Establish communications between all parties involved with building renovations to prevent potential IAQ problems. Develop a forum for occupants to express concerns about renovations as well as a program to resolve IAQ issues.

2. Develop a notification system for building occupants immediately adjacent to construction activities to report construction/renovation 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.

3. When possible, schedule projects which produce large amounts of dusts, odors and emissions during unoccupied periods or periods of low occupancy.

4. Disseminate scheduling itinerary to all affected parties, this can be done in the form of meetings, newsletters or weekly bulletins.

5. Obtain Material Safety Data Sheets (MSDS) for all construction materials used during renovations and keep them in an area that is accessible to all individuals during periods of building operations as required by the Massachusetts Right-To-Know Act (MGL, 1983).

6. Consult MSDS' for any material applied to the effected area during renovation(s) including any sealant, carpet adhesive, tile mastic, flooring and/or roofing materials. Provide proper ventilation and allow sufficient curing time as per the manufacturer's instructions concerning these materials.

7. Use local exhaust ventilation and isolation techniques to control for renovation pollutants. Precautions should be taken to avoid the re-entrainment of these materials into the building's HVAC system. The design of each system must be assessed to determine how it may be impacted by renovation activities. Specific HVAC protection requirements pertain to the return, central filtration and supply components of the ventilation system. This may entail shutting down systems (when possible) during periods of heavy construction and demolition, ensuring systems are isolated from contaminated environments, sealing ventilation openings with plastic and utilizing filters with a higher dust spot efficiency where needed (SMACNA, 1995).

8. Seal utility holes, spaces in roof decking and temporary walls to eliminate pollutant paths of migration. Seal holes created by missing tiles in ceiling temporarily to prevent renovation pollutant migration.

9. Seal hallway doors with polyethylene plastic and duct tape. Consider creating an air lock of a second door inside the renovation space to reduce migration.

10. If possible, relocate susceptible persons and those with pre-existing medical conditions (e.g., hypersensitivity, asthma) away from areas of renovations.

11. Implement prudent housekeeping and work site practices to minimize exposure to renovation pollutants. This may include constructing barriers, sealing off areas, and temporarily relocating furniture and supplies. To control for dusts, a high efficiency particulate air filter (HEPA) equipped vacuum cleaner in conjunction with wet wiping of all surfaces is recommended.

We suggest that these steps be taken on any renovation project within a public building. 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

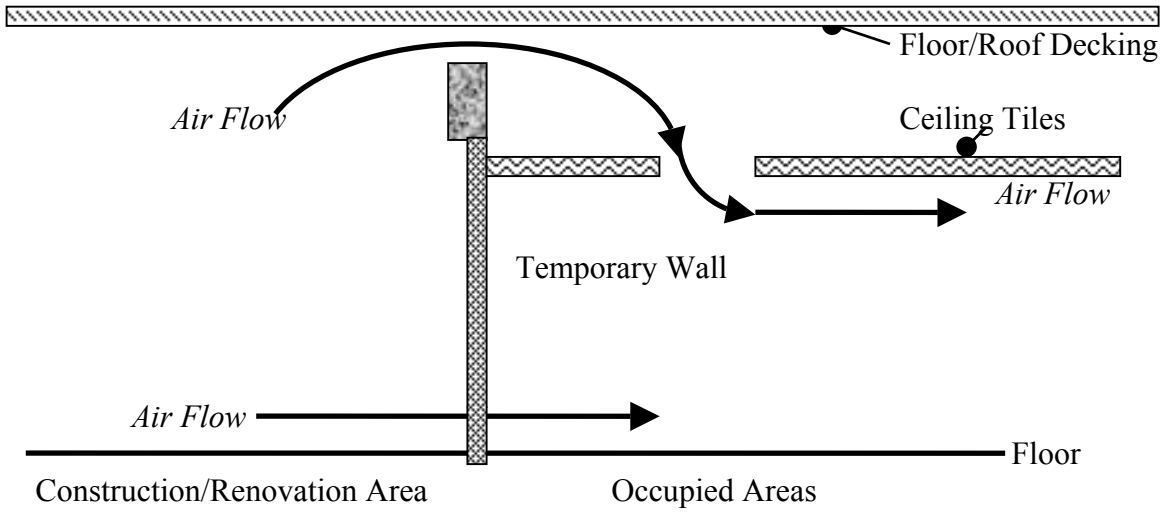
cc/ Mike Feeney, Chief, Emergency Response/Indoor Air Quality
Ken Johnson, Superintendent, Hanover School Department
Thomas LaLiberte, Principal, Hanover Cedar Elementary School
Dan Pallotta, School Building Committee, Hanover Elementary School

References

MGL. 1983. Hazardous Substances Disclosure by Employers. Massachusetts General Laws. M.G.L. c. 111F.

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

Figure 1



(Figure Not To Scale)

Picture 1

Hole in Ceiling System

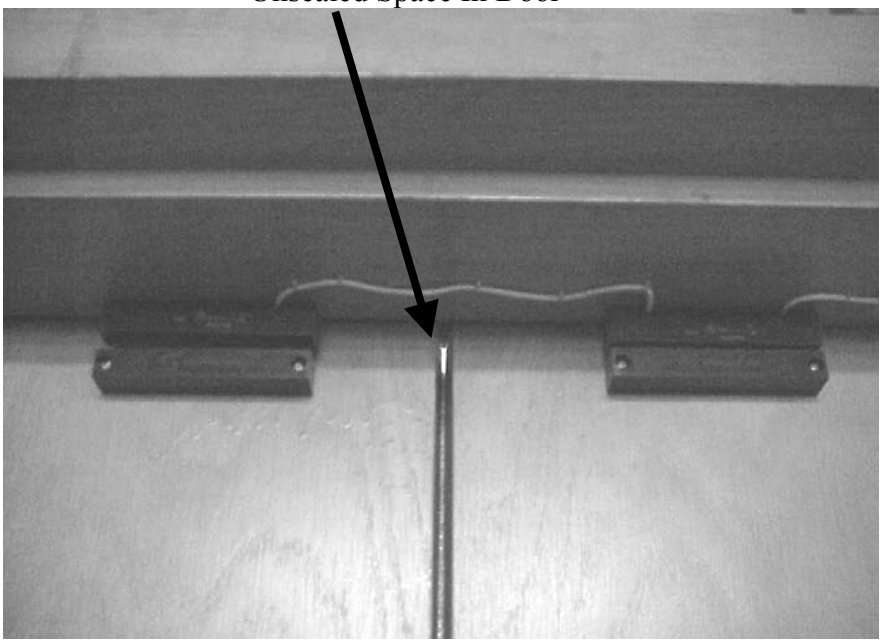
Door Lead to Renovations/New Wing

Picture 2

Close-up of Hole In Ceiling System in Picture 1

Picture 3

Unsealed Space In Door



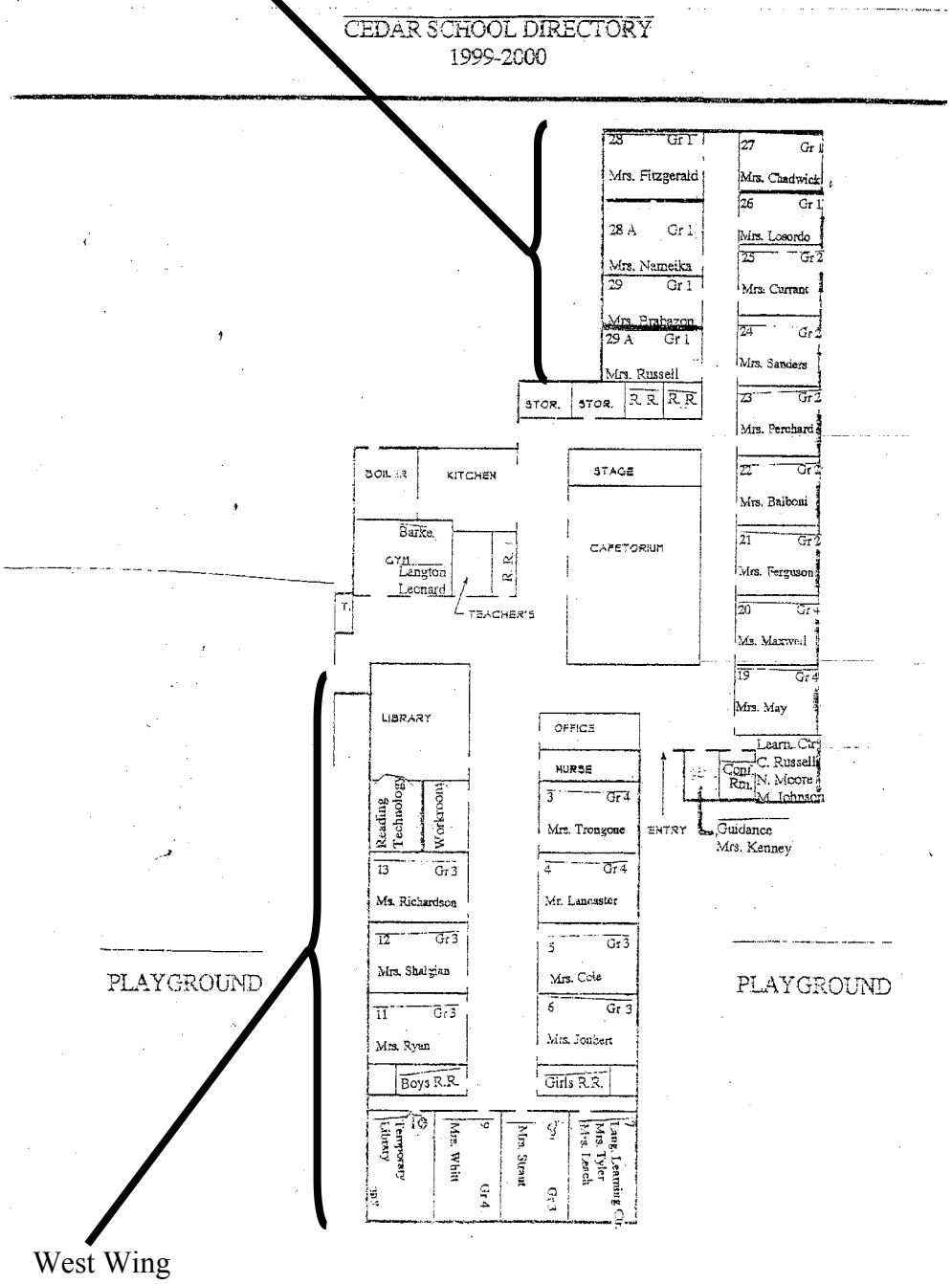
Unsealed Space in Door

Picture 4

Unsealed Door to Library under Renovation

Appendix B

East Wing



West Wing