



City of Cambridge

31.

IN CITY COUNCIL

August 3, 1992

COUNCILLOR RUSSELL
VICE MAYOR CYR
COUNCILLOR DUEHAY
COUNCILLOR WOLF
MAYOR REEVES

ORDERED: That the attached report from the Tobin School PTO Air Quality Sub-Committee be referred to the City Manager and the Superintendent of Schools to address the questions which are put forth in the last paragraph of the report.

In City Council August 3, 1992.

Adopted by the affirmative vote of nine members.

Attest:- D. Margaret Drury, Temporary City Clerk.

A true copy;

ATTEST:-

A handwritten signature in cursive script that reads "D. Margaret Drury".

D. Margaret Drury
Temporary City Clerk

Honorable Mayor
City Councillors
Cambridge City Hall
Massachusetts Avenue
Cambridge, MA 02139

June 24, 1992

Honorable Mayor Reeves and City Council Members;

As you are well aware there are a number of Cambridge schools with air quality problems. Though many of the problems are similar, the Tobin School's problems are unique. We have put together a brief history and accounting of the circumstances and events at the Tobin. Although much work has been done, there is still much to do. We are extremely grateful to the City Councillors, the City Manager and the School Committee members who have supported us and worked so hard with us. We have enclosed this historical overview for your review. There is much work to be done over the summer to insure a smooth opening of school in September.

On a separate note, the most difficult part of this process for us has been the dearth of knowledge on environmental issues at the city level. Our task became not just advocacy but also instructional in that we had to educate many people regarding the nature of these issues in order to gain support for remedial action. The School system very definitely needs a Facilities Manager but it also needs some one within the city who is well versed in all the complexities of environmental issues. These problems are becoming more and more common and this city, with its industrial history, will dearly need this type of expertise.

We thank you very much for taking time to read this material. Please feel free to contact us if you have any questions.

Thank-you,

Tobin School PTO; Air Quality Subcommittee

TOBIN SCHOOL: ENVIRONMENTAL ISSUES

June 24, 1992

• This document is an effort to present a summary of the environmental problems at the Tobin School. We hope to provide both an historical perspective and a clear accounting of current and future work at the school.

Overview

• The Tobin School was built about 20 years ago on land that had previously been a dump. The building, built before the era of energy efficiency, (and the second most expensive building in the city to heat and cool) is a closed system (no operable windows) with an all electric heating and ventilation system. Maintenance of the system was sorely neglected over the years resulting in what is now termed Sick Building Syndrome. In addition to that, the slab beneath the building cracked and separated from the wall (in the crawl spaces) due to the settling of the land fill (the dump) allowing the permeation of methane and Volatile Organic Chemicals (VOCs) into the school.

HISTORY

- In 1986 the engineering firm of Haley and Aldrich tested the school and finding some problems, made corrective recommendations including sealing the cracked slabs. These recommendation were never acted upon.
- In early 1991, under pressure from parents and teachers who were concerned about the variety of health complaints involving children and teachers in the building, the air was tested again by the firm Environmental Health and Engineering (EHE). They tested the indoor air in the crawlspaces and in a sampling of classrooms. They found that most of the unit ventilators (univents) in the classrooms were not performing to satisfactory levels (indicated by elevated CO2 levels). Additionally, most of the exhaust fans on the roof were dysfunctional and were not drawing exhaust air out of the building. EHE found methane and VOCs at levels which they considered to be within acceptable guidelines but which were of serious concern to a number of parents. They recommended sealing the cracks in the slabs and repairing the univents and fans that were not working properly.
- During the Spring and summer of 1991, further analysis of this report and the identification of some errors in EHEs data, led a group of concerned parents (by now a committee formed of parents of sick children) to the conclusion that the report was overly optimistic. This prompted the school department to hire the firm of Simpson Gumpertz and Hager (SGH). They in turn contracted with OccuHealth Inc (an occupational health and safety consultant) and with GEI, Inc. (for geo-technical testing). They were: 1) to study the adequacy of the present HVAC system (already in year 20 of its 20-year life), including re-testing the air quality; 2) to do a more thorough investigation of methane and VOCs in the crawlspaces (including soil-gas testing) and in the school building; 3) to design a barrier to prevent the entry of these substances in to the building; and 4) to recommend a design for a new HVAC system.
- During the summer of 1991, the parent group organized accelerated repairs and maintenance in the building. The building was inspected and any toxic or noxious materials were removed. In each classroom a window was made operable. Every univent in the school was tested and repaired (this work continues as needed). Carpeting around sinks and water fountains was

replaced with tile to prevent the growth of mites and other organisms in the damp carpeting. The exhaust fans on the the roof were repaired. In accordance with the recommendations of SGH, a sealed polyethylene barrier was placed on the floors of the crawlspaces as a temporary means of preventing gases from entering the school through the cracks in the slabs. Six vents with fans (sub slab vents) were then installed below the slabs to pull off any gases collecting there and to exhaust them through 8 foot stacks on the roof of the building. All this work was just barely completed by the start of school in September 1991 accounting for the two day delay in the opening date of the Tobin School.

- On August 27, 1991, the school committee agreed to replace the HVAC system and to make every effort to do this prior to the opening of school in September 1992. The Cambridge City Council voted to provide the funding for the HVAC system and the City Manager agreed that there would be a bond issue for \$1.2 million to cover the cost. In September the school department assigned a Project Manager to the Tobin School to oversee the ongoing work.

- In December, GEI completed their testing and OccuHealth presented their Final Air Sampling report and recommendations. The air quality within the building had improved considerably, however in soil gas test samples collected from below the crawlspaces, VOC and methane levels were found to be above legal limits, and GEI had been obliged by law to inform the Department of Environmental Protection (DEP). Upon review of the GEI data, a letter was sent to the school department dated December 17, in which the DEP said "The results of this investigation identified the presence of significant levels of VOCs and methane gas in the soil gas beneath the crawl space areas...Low levels of VOCs were also detected within the crawl space air during the soil gas survey." They felt that there was not an "imminent hazard" because the new venting system seemed to be operating acceptably. They requested further information and informed the school department that additional testing to identify the source of the subsurface contamination would be required later. The levels of methane below the slab were exceedingly high, under one crawlspace reaching 3 times the Lower Explosive Level (LEL). Occuhealth recommended the installation of Methane alarms in the school building. Since the levels of methane and VOCs are tied together, methane alarms would serve to indicate elevated levels of both.

- In February 1992, the DEP conducted an on-site inspection of the Tobin School. In attendance were representatives from SGH, GEI, Occuhealth, the school department, and the Tobin Air Quality Committee (the parent group). The following testing and safety measures were then recommended. 1) Install pressure sensors in the sub-slab ventilation systems and methane sensors in the cafeteria and crawl spaces. (Negative pressure sensors are a simple way to confirm the integrity of the crawl space seal thus assuring prevention of permeation of substances into the school.) 2) Test for methane and negative pressure at established sampling ports and at new ports where appropriate. (Locations for new ports are currently under discussion.) They will be tested on a weekly basis for the first three months and at monthly intervals thereafter until August 1992. Methane levels are to be sampled from 6 locations under the crawlspace slabs and 6 locations on the first floor. 3) Long term solutions are then to be implemented depending on the test results. If methane levels are above 1/2 of the Lower Explosive Level (LEL) beneath either the crawl space or first floor then permanent gas barriers are to be installed in the crawl space areas. If methane levels are below 1/2 of the LEL underneath both the crawl space and the first floor slab then the existing polyethylene barrier will be upgraded and will remain as a "long-term" sealer. The grid of sampling ports will be

checked to make sure an adequate negative pressure field has been established and regular monitoring will be done. In either case, all cracks and openings in the first floor slab are to be sealed and a grid of sampling ports established for testing negative pressure in the entire first floor area. The DEP will mandate further testing, both soil borings and a test well, at a later date.

- In March, Occuhealth presented options for a new HVAC system. The PTO and the Tobin Air Quality Committee voted a recommendation. Design work and the bid process began.

- In May 1992, the Tobin Air Quality Committee met in an open meeting with the Buildings and Grounds Subcommittee of the School Committee. Jim Rita (the Tobin on-site manager) gave an update on current work. The methane alarm system is ready to be installed. The new probe locations, however, have not yet had approval from the DEP although proposals and discussions are ongoing. Other issues were discussed and the Subcommittee members were supportive and have a good understanding of this very complex problem. Discussed was the troublesome interface between the overworked and understaffed DEP and the overworked School Department bureaucracy. This once again brought up the importance to the entire school system of a Facilities Manager.

Current

- The Tobin School is vastly improved from last year but there is still a lot of work to be done to before the job is complete. There are many questions yet to be answered. It has just come to light that the Tobin abuts one of the worst toxic sites in Cambridge and is very close to others. Are these sites contributing to the problem? Is the pollution a result of the landfill or is it seeping up from the water table? Is it connected with the recently elevated level of Fresh Pond? Is the problem bigger than the Tobin site? These are just a few of the many questions that need to be addressed by the School Department and the city regarding the Tobin School. Our goal and the city's goal is to insure that the Tobin site is safe for our children.

Tobin School PTO; Air Quality Subcommittee

Alan Fischer
Megan Hanna
Penny Brigham
Gina Marquis
Robin Yearwood
Mitch Levine
George Spartichino

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August 3, 1992

COUNCILLOR RUSSELL

ORDERED: That the attached report from the Tobin School PTO Air Quality Sub-Committee be referred to the City Manager and the Superintendent of Schools to address the questions which are put forth in the last paragraph of the report.

CONSENT ORDER #31 F-330
UMCyn Huekey Wolf M Reeves
Councillor Russell re: Report from the
Tobin School PTO Air Quality Sub-
Committee.

In City Council,

August 3, 1992

Order adopted