

**Field Notes for my file: Oxford Center School, Oxford, CT  
Walkthrough of the 7 Campus buildings, Nov 5, 2015**

Walkthrough participants:

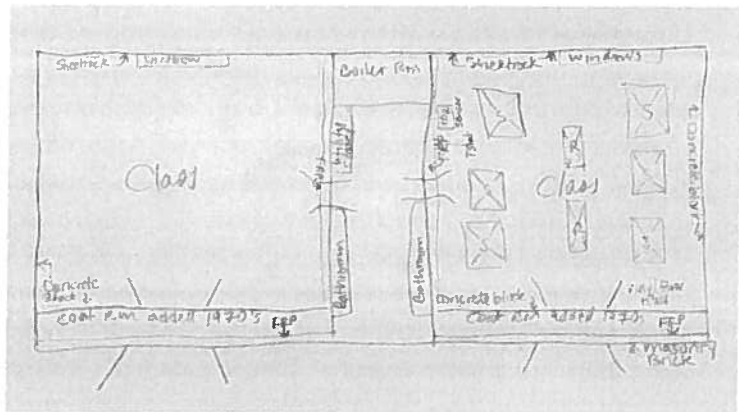
- Marian Heyman, CT DPH
- Neal Lustig & Mona LaBissonette, Pomperaug HD
- Ana Ortiz, Superintendent; John Barlow, Facilities Director; Heath Hendershot, Principal; Rosemary Hanson, Finance Director, Oxford Public Schools

Notes:

Main building cornerstone= 1947; the 7 campus buildings added in 1950. There is a stream behind the playing fields. It was diverted years ago; used to run through the property. Trees on side of campus buildings were cleared to increase sunlight and ventilation, summer 2015.

Campus building description:

There are 7 identical campus buildings, or out buildings. Each is a rectangular masonry and concrete block building on concrete slab. Each building is comprised of 2 classrooms separated by a vestibule containing bathrooms, mechanical room, and utility closet. Another vestibule extending the entire length of the building along one side was added in the 1970's. This vestibule is called the 'coat room area' and is also used for storage. Inside of each building there are 2 concrete block walls, 1 wallboard wall, and 1 fiberglass reinforced panel (FRG) wall (new). Each building has 2 rooftop packaged HVAC units (RTUs), one for each classroom. These were added sometime after 2003. The buildings each have their own above ground oil tanks surrounded by metal fencing. After our visit, I learned from John Barlow that the campus buildings each have an underground septic tank- these were abandoned years ago. John spoke to a retired teacher recently. She told him that septic – like odors were a persistent and routine problem in her campus building when she taught at this school. She recently visited the school and remarked that the current odor was nothing like what she remembered from her teaching days at this school.



### Walkthrough:

John Barlow provided a handout detailing all of the maintenance & repairs to campus building 1 since summer 2015. This building has had the most odor complaints. It has now been vacant since Sept.11, 2015. Reported odors in this building have been described most often as musty/moldy; others have used different descriptors, including foul, and like a stale retirement home. On the day of our site visit, there were strong chemical odors (VOCs) throughout the building as a result of recent renovation/construction, including new paint, epoxy, floor tile removal & renovations to walls. I did not detect moldy/musty odors inside of building 1. However, while walking down the outdoor path to building 1, I did note a moldy odor about 25-50 ft. before reaching the building. I did not smell it after entering the building, but it is possible that the strong chemical odors may have masked it.

During the extensive deconstruction and renovations to building 1, no mold was ever found. There was no evidence of water damage or water wicking up from the ground. A bat and mouse infestation was found behind one of the walls in the coat room (Oct.2015). This may have been either the source or a contributor to the odor. The infestations were subsequently removed.

### Ventilation Revisited:

There have been historical complaints about lack of ventilation going back to 1998. During this visit, we entered each of 6 campus buildings briefly and spent a significant amount of time in building 1. Buildings 2-7 each had different odors that reflected various activities (like cooking) and materials in the buildings. The air felt still, with a lack of movement.

John indicated that the RTUs currently on the roofs were installed before he came to the Oxford Public Schools. It is believed that they were installed sometime after 2003. Apparently, the installers made some modifications to the original design of these Trane units. They added wall mounted CO2 sensors in each classroom that were wired directly to RTU economizers. This was supposed to allow the economizers to open further for more fresh air when CO2 in the building rises to the set point. John said that they recently discovered that although the economizer dampers were opening, the fans never turned on. This is a major flaw that negatively impacts outdoor air delivery to the classrooms. Additionally, the CO2 sensor set points were fixed at 1500 ppm, which is typically too high to ensure an adequate amount of fresh air. John does not know how this set point was chosen.

Discovery of this flaw with the fans not turning on led the facilities department to contact their service company and request that the CO2 mediated controls be removed. The plan now is to return the HVAC units to function as per the original Trane design (controlled by temperature and humidity). The CO2 sensors will remain attached to classroom walls for readout purposes, but will no longer be attached to HVAC controls. This has been done already in several buildings; the rest will be changed with the next 2 months. John mentioned that the original RTU design calls for a nominal damper opening of 10%. When I asked if it could be changed to 20% allow for more fresh air, he said that it could not because during cold weather, the hot water coils would freeze if exposed to 20% unconditioned cold air. John subsequently contacted the manufacturer, Trane. They confirmed that 10% is the nominal setting on these units to prevent freezing of the hot water coils during cold weather.

At this time, we recommend taking a closer look at the HVAC systems serving the campus buildings. John will contact Trane to get a full set of design and performance specifications. I recommended hiring

an HVAC engineering firm to provide a more detailed evaluation of the current systems to see if they are capable of adequately serving these buildings and their inhabitants. Performance of volumetric air flow measurements at each diffuser and comparison of results with design specifications are recommended as part of the evaluation. Any HVAC system serving the campus buildings should provide the ability to maintain a slight positive pressure inside of the buildings with respect to the outdoors in order to minimize outdoor odors from entering the buildings.

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