



2150 Smithtown Ave., Suite 3, Ronkonkoma, NY 11779  
T: 631.580.3191 • F: 631.580.3195 • W: [envirohealth.org](http://envirohealth.org)

July 19, 2021

Mr. Carlo Ferrero  
Half Hollow Hills CSD  
525 Half Hollow Road  
Dix Hills, NY 11746

Re: **Districtwide Ventilation Assessment**

Dear Mr. Ferrero,

From July 19th through August 12th, 2021, Enviroscience Consultants, Inc. performed building-wide ventilation assessments within the Half Hollow Hills Central School District. The purpose of these audits was to characterize the ventilation of functional spaces within the school building, in preparation of returning to full capacity in-school learning in September 2021. Our assessment was performed within all of the occupied spaces in the building. We evaluate in our audits:

- Unit ventilators open and free of obstructions;
- Unit ventilators and HVAC systems delivering air at designed ventilation rates measured in cubic feet per minute (CFM);
- Exhaust grills in doors or classroom walls unobstructed;
- Rooftop exhaust fans operational and functioning;
- Fresh air dampers open.

The assessment indicates that the ventilation in northwest section of the first and second floors, and southeast section of the second floor of West Hollow Middle School is inadequate. In all other buildings in the district however, the overall ventilation is adequate and has air flow required by NYS Education Department Building Code, and follows the U.S. Environmental Protection Agency Indoor Air Quality in Schools Guideline, and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1-2013. For assessments of air flow, sampling was performed using a hot wire anemometer. The hot wire anemometer measures air velocity and volume flow rate to determine the overall ventilation of the space. Results are obtained in real time. The building was assessed under normal, daytime operating conditions. Assessments of fresh air damper operation, when combined with appropriate levels of air volume, are deemed acceptable ventilation rates. Generally, classrooms should have 13 CFM (ages 5 to 8) and 15 CFM (ages 9+) per occupant, and offices should have 17 CFM per occupant (TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone, ASHRAE Standard 62.1-2013). Further, typical unit ventilator specifications for classrooms have a capacity of 1,000 CFM, or approximately 40 CFM for 25 occupants. We assess to this more conservative guideline.

Insufficient air flow can contribute to health problems, absenteeism, and accelerated deterioration of building components and equipment, as well as an accumulation of indoor contaminants. To ensure proper air flow, vents should not be obstructed, air filters should be replaced regularly, and ducts should be cleared of debris and dirt. Enviroscience Consultants, Inc. made an assessment of each aspect in our audit.

There are a few areas of concern that should be corrected:

**Otsego Elementary School:**

- Rooms 101, 202, 203 and 204 have miscellaneous items stored on univent and/or debris in vent.
- Rooms 101 and 102 have miscellaneous items obstructing exhaust grilles.
- Math Lab Room does not have an exhaust grille.
- Room 107 univent is nonfunctional.

**Paumanok Elementary School:**

- Room 206 has miscellaneous items stored on univent.
- Rooms 118, 119, 120, 121, 111, 121, 122, 123, and 206 have miscellaneous items obstructing exhaust grilles.
- One side of the univents in Rooms 115 and 202 are nonfunctional.
- Room 200A univent is nonfunctional and does not have an exhaust grille.

**Signal Hill Elementary School:**

- Rooms 112, 113, 115, 117, 126, 202, 203, 205, 206, and 210 have miscellaneous items stored on univent and/or debris in vent.
- Room 112 has miscellaneous items obstructing exhaust grille.
- Rooms 115, 116, 117, 118, 119, 125, and the Music Room do not have exhaust grilles.
- Room 109 and 209 univents are nonfunctional.

**Sunquam Elementary School:**

- Rooms 1, 111, 107, 108, 114, 115, 120, 121, 201, 202, 206, and Art Room have miscellaneous items stored on univent and/or debris in vent.
- Rooms 102 and Art Room have miscellaneous items obstructing exhaust grilles.
- Rooms 104, 304, Speech Room, Faculty Room, Main Office, Principal's Conference Room, and Old Psychologist's Office do not have exhaust grilles.
- Room 304, Reading Room, Old Psychologist's Office and Library univents were nonfunctional.
- The Band and Chorus Rooms have no mechanical ventilation and no measurable flow through bathroom exhaust grilles.

**Vanderbilt Elementary School:**

- Rooms 101, 102, 103, 106, 107, 116, 117, 118, 119, 121, 124, 205, 207, 208 and Faculty Room have miscellaneous items stored on univent and/or debris in vent.
- Rooms 101, 104, 105, 112, 113, 115, 120, and 121 have miscellaneous items obstructing exhaust grilles.
- Rooms 125, 203, and the Reading Area do not have exhaust grilles.
- Rooms 203, Speech Room, Reading Area and Faculty Room univents are nonfunctional.

**Candlewood Middle School:**

- Rooms 101, 104, 105, 109, 110, 203, 204, 205, 210, 215, 216, 301, 302, 503, 511 and 602 have miscellaneous items stored on univent and/or debris in vent.
- Room 506 and the Boy's Locker Room have miscellaneous items obstructing exhaust grilles.
- Rooms 107, 112, 507, 609 and the School Psychologist, do not have exhaust grilles.
- Rooms 201, 211, 214, 215, 301, 504, 511, 605 and the Girl's Locker Room univents are nonfunctional.
- Room 402 air handler, and the south air handler in the East Gym are nonfunctional.

**West Hollow Middle School:**

- Room 144 has debris in vent and Room 226 wall vent is obstructed by a box.
- Rooms 209, 211, 214, 223, 226 and 231 have miscellaneous items obstructing exhaust grilles.
- Room 242 and the Copy Room do not have exhaust grilles.
- Faculty Dining Room and Cafeteria (area adjacent to kitchen) air handlers are nonfunctional.
- Flow rates in most classrooms in the northwest section of the first and second floors and southeast section of the second floor do not meet the rate of 1,000 CFM per classroom or 40 CFM per anticipated occupant.

**Half Hollow Hills East High School:**

- Rooms 109, 209, 217, 303, 405, 407, 544, 554, 556, 607, 609, 723, 725, 735, 745, 818/819, 823, 825, 906, Main Office, and Library have miscellaneous items stored on univent and/or debris in vent.
- Rooms 306, 723, 906, have miscellaneous items obstructing exhaust grilles.
- Rooms 212, 539, 541, 553, 555, 728, Mr. Apessos' Office, Guidance Center Offices, and Faculty Room West do not have exhaust grilles.
- The left univent in Cafeteria A and two far right univents Lecture Hall are nonfunctional.
- Room 817 air handler is nonfunctional and univent flow rate was low.
- Room 551 has no mechanical ventilation and exhaust grille dampers are closed.

**Half Hollow Hills West High School**

- Rooms 102, 103, 110, 151, 170, 210, 213, 214, 215, 217, 218, 219A, 220, 221, 222, 235, 240, 270, 271, 273, 550, 551, 552, 553, 554, 555, have miscellaneous items stored on univent and/or debris in vent.
- Rooms 120, 230, 237, 246, 247, 549, Principal's Receptionist and Psychologist's Office do not have exhaust grilles.
- Rooms 115, 131, 211, 214, 215, 233, Faculty Dining, and Trainer's Room univents were nonfunctional.

**Fran Greenspan Administration Building:**

- Rooms 207, 208/210, 208 Office, 211, and Room 101/103 have miscellaneous items stored on univent.
- Rooms 104/106, 108-Math Office, 206, 207, 208, CYA Office and Gymnasium, have miscellaneous items obstructing exhaust grilles.
- Rooms 107-Office, 108-Science Office, 203-Office do not have exhaust grilles.

**Transportation Building:**

- The Driver's Break Room and Dispatch Office have natural ventilation only and no exhaust grilles.

Reference the attached Ventilation Assessment Forms for the findings identified in each of the buildings. Classroom doors should remain open in rooms where exhaust grilles are not present, as per NYSED Reopening Guidance – August 26, 2020.

Sincerely,



Glenn Neuschwender