



Belfast Central School District

CASE STUDY

Building	Belfast Central School Building
Location	Belfast, New York
Environment	Public School Building
Project Goal	Reduce Student Absenteeism Due to Sickness

HealthWay CLASSROOM FFU

Nestled in western New York, the town of Belfast has seen its share of changes over the last 200 years. Belfast School District Superintendent Dr. Wendy Butler was looking to improve her students' learning environment by focusing on the quality of air her students and staff breathe.

Challenge

In order to reduce airborne contaminants potentially leading to illnesses in the school, increasing the amount of clean air in the classroom without interrupting the learning environment was Dr. Butler's goal. This included proper airflow, sound and ability to be clear of student tampering.

Solution

Two concealed ceiling mounted HealthWay fan filter units (FFU) were installed in the 13 classrooms. Each FFU was fitted into the existing T-bar ceiling and ducted to two return grilles. The existing classrooms were mechanically ventilated for outside air with unit ventilators and a MERV 8 pre-filter. HealthWay's electronically enhanced filtration attracts and captures ultrafine particles without the pressure drop penalty of traditional MERV filtration. The engineering design and installation was coordinated by HealthWay partner Stark Tech of Buffalo, NY.

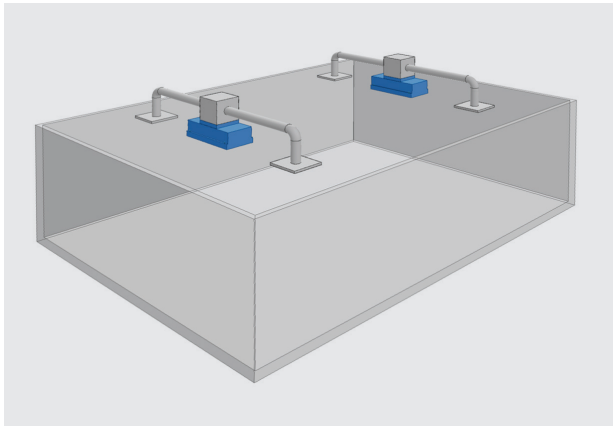


PARTICLE COUNT REDUCTION

99.82% | 0.3 microns
30 Minutes

INCREASED ECAI PER PERSON

58 X Better | Normal
Operating
Mode



Equivalent Clean Air (ECAi) – ASHRAE 241

Recent guidance from the Center for Disease Control and Prevention (CDC) urges schools to implement HVAC improvements to help reduce transmission of airborne diseases. Likewise, ASHRAE Standard 241 can be used as a blueprint for how school buildings and classrooms can achieve increased equivalent clean airflow (ECAi) rates that reduce airborne disease transmission risks and lays a solid foundation in the event of another airborne disease outbreak.

For infectious risk management, ASHRAE defines equivalent clean air ECAi as the flow rate of pathogen-free air that, if distributed uniformly within the breathing zone, would have the same effect on infectious aerosol concentration as the sum of actual outdoor airflow, filtered airflow, and inactivation of infectious aerosols.

HealthWay ECAi Calculations – Belfast Classrooms

- Unit Ventilator alone was bringing in outside air values below minimum
- With FFUs at low speed, 58 times better ECAi rate achieved
- At high speed, FFUs meet Infection Risk Management Mode (IRMM) threshold of 40.0 CFM/student

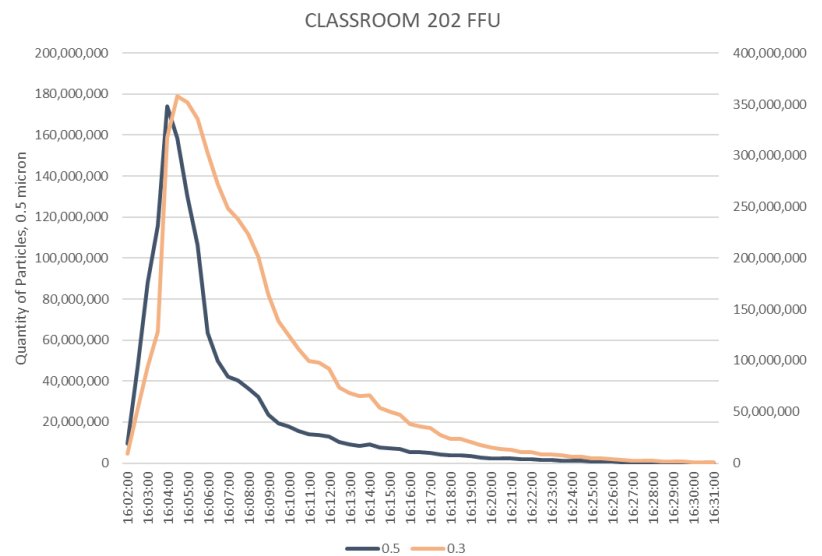
Results

Air Systems Balancing and Testing Service Inc. of Rochester, NY performed assessment testing in two classrooms. They were hired as an independent specialty testing contractor to test and document the efficacy of the FFU's in two different classrooms.

Two smoke tests were conducted in each classroom and particulate readings were taken for 1 hour in 30 second intervals. The first test included both the unit ventilator and the FFUs in the “on” position. The unit ventilator was operating at low or medium speed while the FFUs were at 25% fan speed. The FFUs were then turned off and only unit ventilator readings were taken.

Visually, the smoke disappeared when the FFUs were in operation within 30 minutes. The unit ventilator did not clear the smoke within the allotted 60 minutes.

Particulate Removal



Looking at the raw data for particulates using a Lighthouse Solair 1100 particle counter, the FFU classrooms reduced 0.3 microns by 99.82% and 0.5 microns by 99.93% in the 30-minute time frame.

Looking for cleaner air for your classrooms?

At HealthWay, we are working to make the world a better, safer place. We're looking forward to serving you and helping to solve your indoor air quality challenge. If you haven't found what you're looking for, please don't hesitate to get in touch with us today. Fill out our online form, or feel free to give us a call. Our standard business hours are 8:00am to 5:00pm EST, Monday-Friday.



Solutions For Your District