



# Building Performance Equipment, Inc.™

Scientists and Engineers



## LOCATION

Hopewell Valley Regional  
School District  
Pennington, New Jersey 08534

**Norman Torkelson, Director of Facilities at the Hopewell Valley Regional Schools states:**  
*“By applying energy recovery technology(s) to our older buildings, the energy savings alone justify the installation of a BPE unit. Additional benefits including improved thermal comfort and indoor air quality, as well as reduced operation and maintenance costs, also create a positive initiative to install more BPE units!”*

## CHALLENGE

The initial challenge presented to BPE was how to retrofit the two (2) compromised unit ventilator fresh air intake systems identified around the district. The goal was to be able to provide fresh outside air and also take advantage of heat recovery from the exhaust air.

Subsequently, nine rooms needed improved indoor air quality, as students were experiencing thermal discomfort. Also, ventilation was needed to support the conversion of two storage rooms to work rooms, where there were no existing HVAC systems except exhaust. Retrofitting the subsequent nine rooms provided challenges due to the age of some of the district buildings. (Circ. 1925 and 1928).

## SOLUTION

The solution was to use the highly efficient BPE-XE-MIR-200 and 500 series heat exchangers to precondition the outdoor air entering the space to within several degrees of room temperature. “On demand” ventilation driven off a CO<sub>2</sub> sensor was presented as well. This provides the ability to bring in fresh air and vent out exhaust air (the CO<sub>2</sub> created by the students breathing when the room is occupied), and to minimize moisture and outdoor ventilation air loads when there are no people in the classrooms.

By using the BPE units the duct work was kept to a minimum size. We were able to use the existing ceiling cavities to install the units, which typically need only eight inches of ceiling space. This allowed the equipment to be installed into the existing school without major mechanical or structural retrofits. After an evaluation of the indoor air quality conditions by an independent industrial hygienist, the moisture levels were found to be improved while the indoor air quality was greatly improved at 600ppm of CO<sub>2</sub>, which is well below standards for fresh air ventilation for a classroom or modern building.



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