



Building Performance Equipment, Inc.®

Sustainable, Reliable, and Energy Efficient Ventilation Systems



REVISIT



LOCATION

Woodstock Infusions

Pilates & Hot Yoga Studio

Woodstock, NY

This case study revisits an ERV installation at Woodstock Infusions Pilates and Hot Yoga one year later. ([See original case study.](#)) Back then, owners Marc Baumslag and Kim Rice sought a solution for making their brand-new studio a healthy, properly heated and ventilated experience. This revisit asks, Has the BPE-XE-MIR-2000 served its purpose under the pressure of a full schedule of classes?

Challenge

Hot Yoga requires a high heat (typically 90°F to 105°F) and humid environment to increase yoga's effect on the body. Sounds great, until you realize the desired effect, without proper ventilation, also creates a rise in CO₂ due to student physical exertion. The higher the CO₂ reading, the more clients risk breathing in toxins, pathogens, and viruses.

As a recap, the following factors led the project team to select a BPE Energy Recovery Ventilator with two BPE T-12 in-line fans:



Room Dimensions: The 300-sq.ft. studio's layout, which has 11-foot ceilings, and an air volume of 3,200 cubic feet, called for 12" ductwork. Since the layout was somewhat unique, BPE's CEO, Klas Haglid, drove up to assist with a design for the HVAC system.

Meditative Environment: BPE ERVs are already rather quiet, so the addition of silencers made for the extreme quiet needed for students to focus.

Fresh Air: Heat, humidity, and CO₂ can incur toxins and poor oxygen levels. Frequent discarding of stale air and bringing in outdoor air (air exchanges) is non-negotiable, so the BPE-XE-MIR-2000's maximum 2,000 cubic feet per minute of air exchange satisfies that requirement.

Cost-Effectiveness: The BPE-XE-MIR-2000 is a *high-efficiency* Energy Recovery Ventilator. The ability to keep the studio warm, especially on cold winter days, without incurring a hefty energy bill is essential.

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Solutions



Unique layouts require unique HVAC design. As class sizes and frequency grew, it was clear the project team made the right call by installing a BPE ERV. The studio could not operate without a high-efficiency, high-quality solution for CO₂ build-up. At least not without putting clients' health at risk and having them leave a workout feeling sluggish. Instead, thanks to effective air exchanges that limit CO₂, students report feeling great as they leave class.

"The architecture of the physical positioning of fans and air was well conceived," says Baumslag of the team's design. The solution sent bad air rising toward the ceiling to exit the building instead of moving across the room right through the workout area. "The fresh air coming down from the incoming air stream," Baumslag adds, "is as clean as you'll get." Two MERV-8 filters add to great indoor air quality.

Controlling CO₂ Indoors. The staff of Woodstock Infusions is very particular about monitoring CO₂ levels during classes. Outdoor air holds 400 ppm of CO₂. ASHRAE considers indoor levels below 1,000 ppm safe. To keep that level as low as possible, whenever the CO₂ meter on the studio wall starts rising, staff will increase fan speed on the ERV system. Whether through controls on the unit or via Bluetooth from a smart phone, it's easy to adjust fan speed gradually up to a control setting of 10. Typically, this studio adjusts speed as high as 8 during the peak intensity of a class.



Keeping Hot Yoga Hot. While BPE ERVs theoretically can approach 100% efficiency, real life and unique circumstances will typically yield thermal efficiencies of 70% to 90%+. Compared to the average ERV's efficiency of 50% to 70%, the BPE high-efficiency ERV will preheat incoming air to the studio up to 95°F to 100°F—not quite high enough for Woodstock Infusions' standard studio temperature. The system will start blowing cooler air at a certain point after that.

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Given the high temperature a hot yoga studio requires, the BPE-XE-MIR-2000 does not perform at 100% efficiency, Baumslag notes. This, of course, wouldn't be a problem in a home or office where 95°F would not be desirable. In this unique indoor environment, however, clients need those extreme temperatures for their best workouts. So, Baumslag adds some heating panels to the room, as is a common practice for hot yoga studios. Also, as with most indoor spaces, the greater the difference in temperature between indoors and outdoors, the less efficient an ERV will become. So, on a frigid day, say 20°F, more heating panels may come into play.

After a year with the BPE ERV setup, Baumslag considers this studio project a great hi-tech solution with an enjoyable customer experience. As well, he notices the ERV set up is a marginal part of the business' energy bill.

When it comes to healthy exercise in the Woodstock, New York area, Woodstock Infusions Pilates and Hot Yoga is turning up the heat for meeting healthy and effective workout standards. BPE, Inc. is honored to be of assistance in keeping this business running hot!