

Everyone  
Needs  
Fresh Air



**SMART VENTILATION**





**HEALTH**



**Risk of Sick Leave Associated with Outdoor Air Supply Rate, Humidification, and Occupant Complaints**

**FINDINGS**

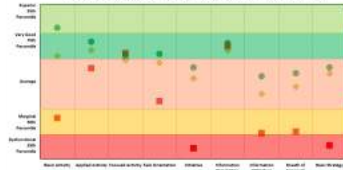
**Cost of sick leave** due to **poor indoor air quality**  
**\$480**  $\frac{\text{Person}}{\text{Year}}$  or **\$22.8 Billion** **Nationally per Year**

**COGNITION**



**Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers: A Controlled Exposure Study of Green and Conventional Office Environments**

**FINDINGS**



**Poor indoor air quality** results in **significant impairment** of **Cognitive Function**

**Sleep**



**The effects of bedroom air quality on sleep and next-day performance**

**FINDINGS**

**Added ventilation** at night resulted in **improved sleep quality**  and **better next-day alertness and focus**

**PRODUCTIVITY**



**Economic, Environmental and Health Implications of Enhanced Ventilation in Office Buildings**

**FINDINGS**

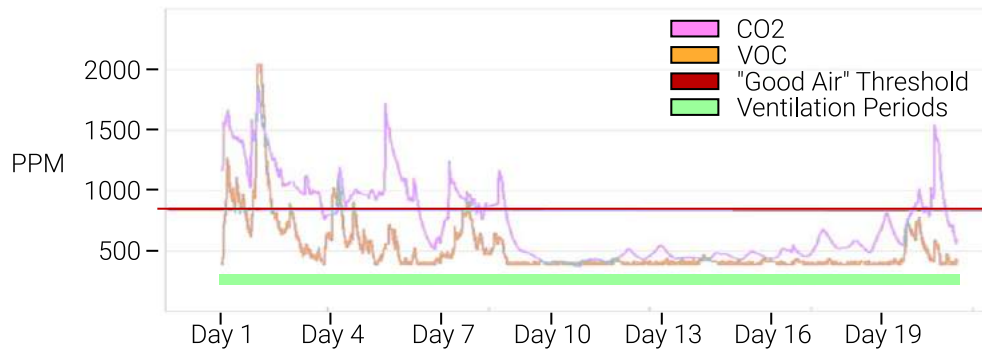
**Enhanced ventilation** results in an **increase of**  
**\$6,500**  $\frac{\text{Person}}{\text{Year}}$  **productivity**

with minimal effect on energy cost

Links to full studies available at  
**WWW.BUILDEQUINOX.COM**

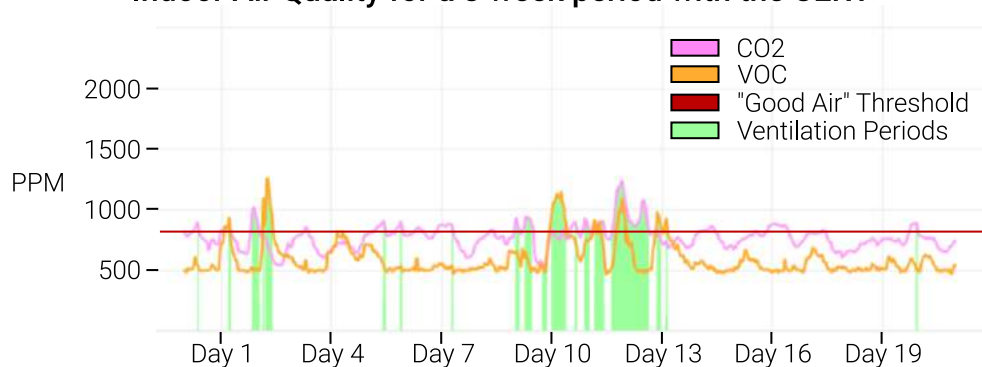


### Indoor Air Quality for a 3 week period with an ERV



With a standard ERV/HRV, you get a constant low air flow rate with no relation to actual indoor air quality or occupancy. For the first ten days, when the home is occupied, the air quality is poor - the ERV just can't keep up. When the occupants leave on vacation, the ERV keeps ventilating and wasting energy.

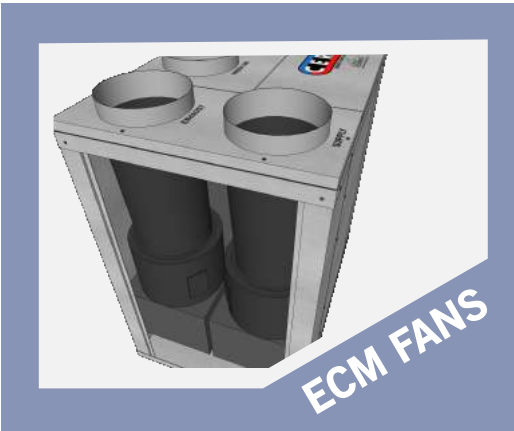
### Indoor Air Quality for a 3 week period with the CERV



Since the CERV actually monitors air quality, it ventilates only when it needs to. Unlike a fixed airflow ERV, the CERV can ventilate up to 300CFM, quickly purging pollutants from the home. When no ventilation is needed, the CERV can recirculate and unify the home, providing some additional heating or cooling/dehumidification in an energy efficient manner.

Both scenarios have good **"average"** air quality.  
Which air would you prefer to breathe?

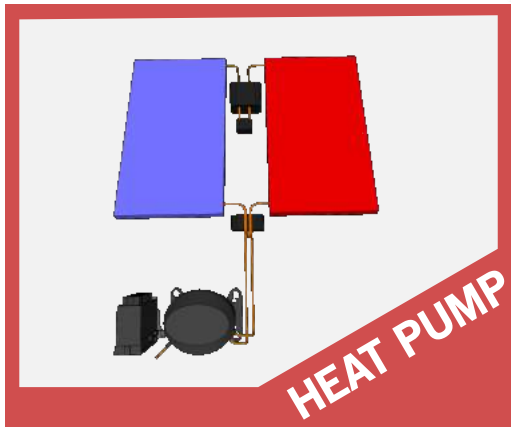
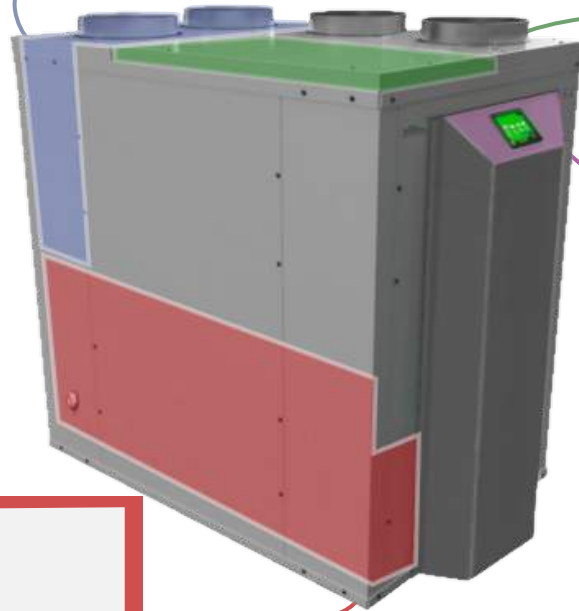




The CERV uses the latest ECM fan technology to deliver fresh air efficiently and quietly. The CERV's intelligent controls maximize fresh air delivery, ensuring your home stays fresh, comfortable, and healthy.



The CERV's filter access panel allows the homeowner easy access to inspect and replace both indoor and outdoor filters. The CERV accepts standard 10x20 size, with your choice of filtration. MERV 13 comes standard with the unit.



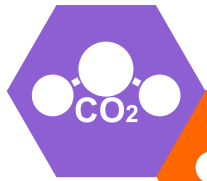
Instead of an ERV exchanger core, the CERV uses a high efficiency heat pump to exchange energy between incoming supply and outgoing exhaust air.

What does this mean?

Conditioned, comfortable air unifies the home instead of dragging exterior rooms away from comfort. In the summer, the CERV also helps with dehumidification



A built in 3.5" full color capacitive touchscreen makes interaction with the CERV a pleasure. Monitor your indoor air quality, change your setpoints, and configure the CERV to best suit your home and lifestyle with ease.



## INDOOR AIR QUALITY



The CERV monitors both CO<sub>2</sub> and Volatile Organic Compound (VOC) levels inside your home to determine when ventilation is necessary. Many gasses are undetectable to the human nose, yet can cause significant impairment to health, cognition, and sleep quality. Even though you can't smell them, the CERV can.

## COMFORT

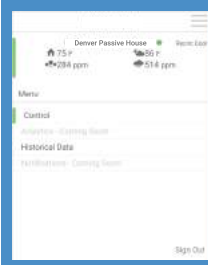


While the CERV is small in capacity, its capabilities are anything but. By measuring indoor and outdoor temperature and relative humidity levels, the CERV knows the most efficient way to keep your home healthy and comfortable.

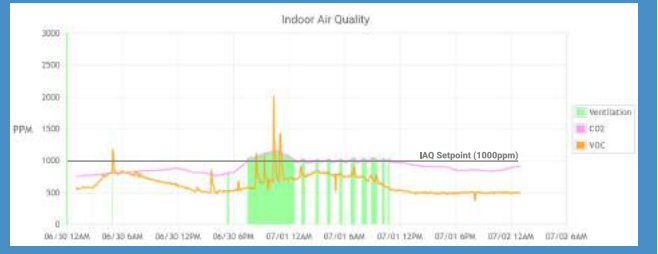
## ONLINE CONTROL & MONITORING



The CERV is the only system that gives you the information you need to know that your family is breathing the highest quality air. CERV-ICE online control and monitoring allows you to check your air quality and change settings and setpoints from anywhere in the world using your mobile device. You can also view and download historical temperature, relative humidity, and indoor air quality data. CERV-ICE comes standard and has no monthly fee!

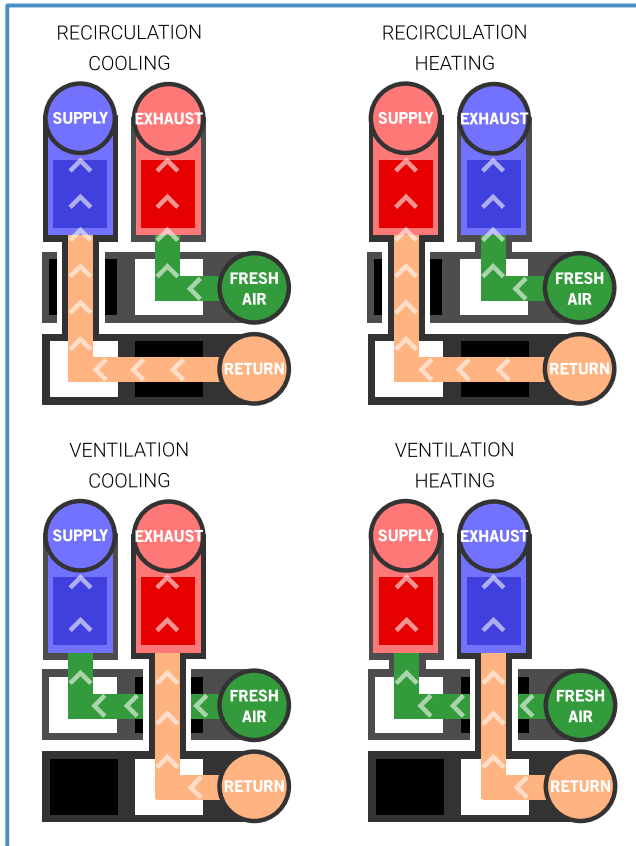


CERV-ICE DASHBOARD

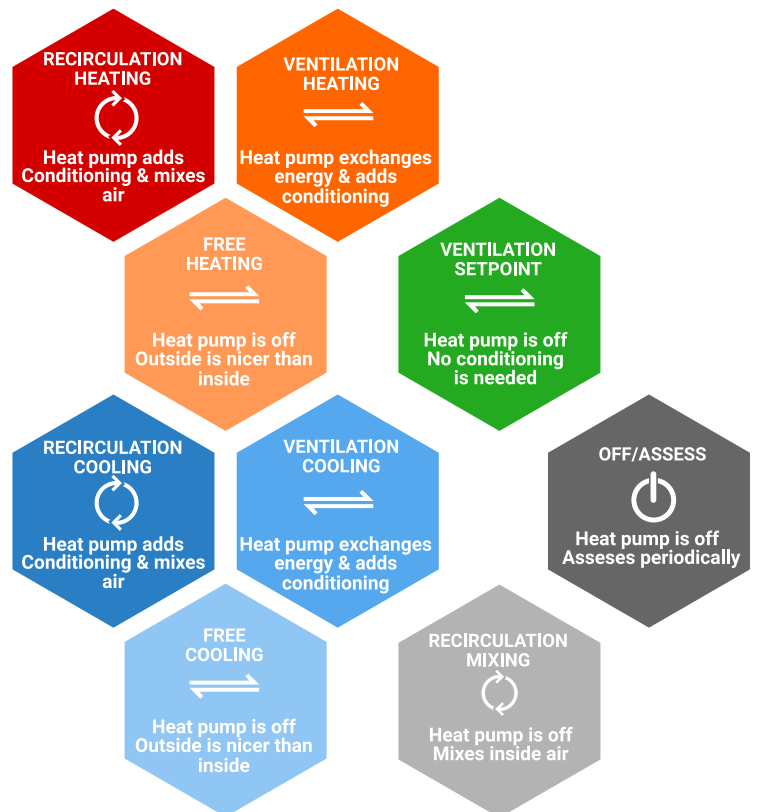


CERV-ICE HISTORICAL DATA

## HEAT PUMP MODES




## CERV OPERATION MODES



**You wouldn't buy a car without a speedometer, so why buy a ventilation system that doesn't measure air quality?** Indoor air pollutants must be measured for efficient management, and the CERV does just that. Built-in **CO2 and VOC (volatile organic compound) sensors** automatically **measure and maintain excellent air quality** in your home. Your family's health is too important for guesswork.

**Energy recovery taken to a new level.** The CERV's **super-efficient inverter drive heat pump** technology surpasses traditional ERV/HRV systems. When you're stuck inside on the coldest day of the year, you need fresh air the most - the CERV has **no low temperature operation restrictions**, so the fresh air can keep flowing. Home occupants in warm/humid climates will appreciate the CERV's ability supply **cool, dehumidified fresh air** to the house. If that wasn't enough, the CERV's **unique recirculation mode** provides additional conditioning when fresh air is not needed, significantly improving comfort.

**Innovative controls** further set the CERV apart from other ventilators. Built with the **user experience** in mind, our color touchscreen controller is easy to read and **simple to use**. For users interested in web connected devices, the CERV's built in Wifi gateway called CERV-ICE opens up a world of **ventilation control never before seen**. Control your CERV from anywhere, access archived data, receive system notifications and updates, read your home health reports, and more! All from your computer, tablet, or mobile device.

	"Natural" Ventilation	HRV Heat Recovery Ventilator	ERV Energy Recovery Ventilator	
Sensible Energy Recovery	✗	✓	✓	✓
Conditioned Air Delivery	✗	✗	✗	✓
CO <sub>2</sub> Monitor & Control	✗	+\$	+\$	✓
VOC Monitor & Control	✗	+\$	+\$	✓
Recirculation & Mixing Mode	✗	✗	✗	✓
Online Control & Monitoring	✗	+\$	+\$	✓
Home Health Feedback Reports	✗	✗	✗	✓

# SPECIFICATIONS

## Electrical

Voltage Supply	120V (60hz)
Minimum Circuit Size	12 A
Connection	Standard NEMA 5-15P Plug, 6ft cord

## System

Airflow Rate	100-300 CFM
Air Filter Size	10"x20"x1"
Duct Size	8" Round
Condensate Drain	3/4" PVC
System Weight	142lbs

## Sensors

Temperature	- 40 to 185F +/- 0.36F
Relative Humidity	0 to 100% +/- 2%
CO <sub>2</sub>	400 to 5000ppm +/- 25ppm +/-3%
VOC	450 to 2000ppm CO2 Equivalent

### VOCs Detected

Alcohols, Aldehydes, Aliphatic Hydrocarbons, Amines, Aromatic Hydrocarbons, CO, CH<sub>4</sub>, LPG, Ketones, Organic Acids

## Warranty

5 Years

# PERFORMANCE

Heating: 47F Outside, 68F Inside

Heating Capacity (Btu/h)	4731 (Recirc)* 6531 (Vent)**
Heating Efficiency (COP) (excludes fan power - see below)	3.6 (Recirc) 4.8 (Vent)
Heating Elec Power (W) (excludes fan power - see below)	379 (Recirc) 399 (Vent)

Heating: 32F Outside, 68F Inside

Heating Capacity (Btu/h)	3702 (Recirc) 6789 (Vent)
Heating Efficiency (COP) (excludes fan power - see below)	3.3 (Recirc) 5.4 (Vent)
Heating Elec Power (W) (excludes fan power - see below)	331 (Recirc) 366 (Vent)

Heating: 17F Outside, 68F Inside

Heating Capacity (Btu/h)	2674 (Recirc) 7046 (Vent)
Heating Efficiency (COP) (excludes fan power - see below)	2.8 (Recirc) 6.2 (Vent)
Heating Elec Power (W) (excludes fan power - see below)	283 (Recirc) 332 (Vent)

Cooling: 95F(DB)/75F(WB) Outside,  
80F(DB)/67F(WB) Inside

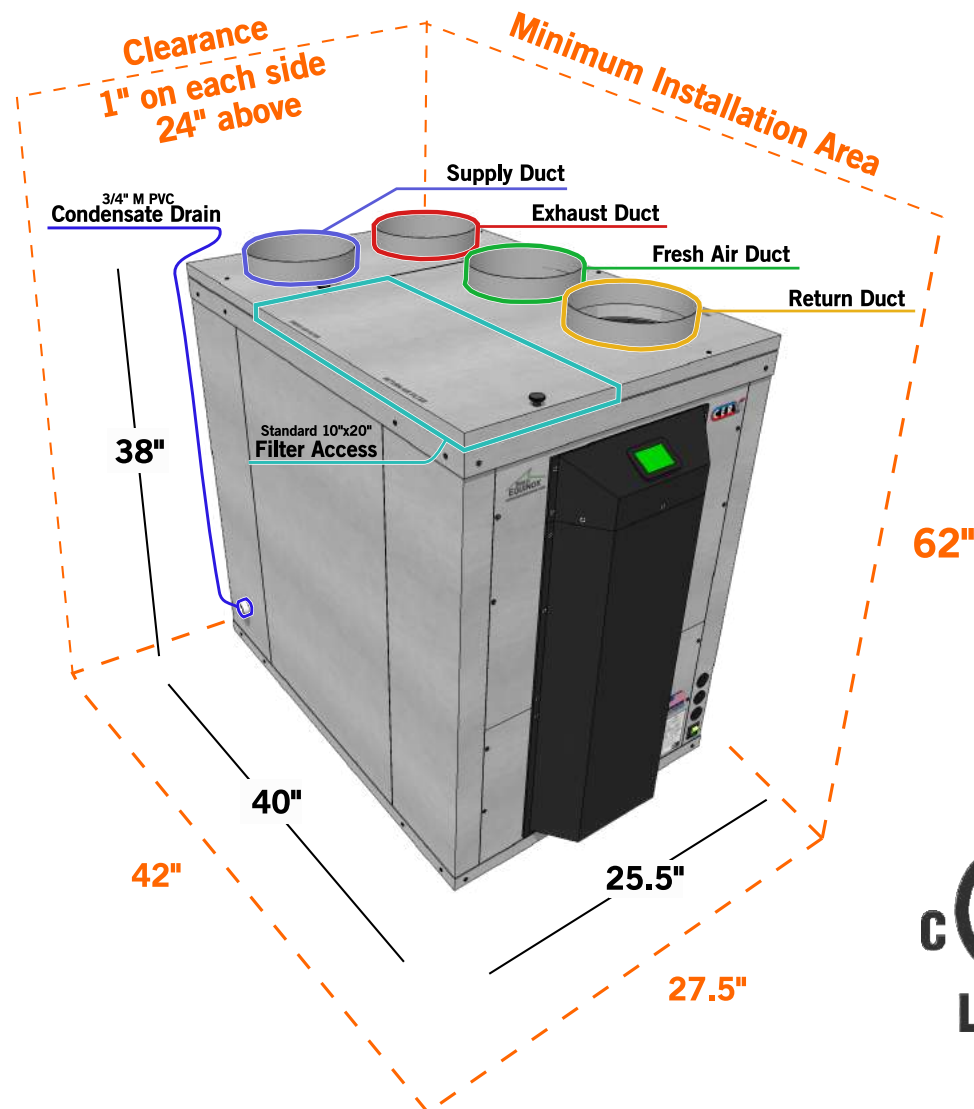
Total Cooling Capacity (Btu/h) Sensible + Latent	2230 (Recirc) 5314 (Vent)
Sensible Cooling (Btu/h)	1318 (Recirc) 3891 (Vent)
Latent Cooling (Btu/h)	912 (Recirc) 1423 (Vent)
Dehumidification (Liters/Day)	9.6 (Recirc) 14.9 (Vent)
Cooling Efficiency (COP) (excludes fan power - see below)	3.2 (Recirc) 7.6 (Vent)
Cooling Elec Power (W) (excludes fan power - see below)	202 (Recirc) 204 (Vent)

## Fans

Total Fan Power (W)	38.6(50% Speed)
ECM Fans (heating & cooling)	98.1(70% Speed)

\* Recirculation mode heating and cooling capacity is relative to indoor conditions

\*\* Ventilation mode heating and cooling capacity is relative to outdoor air conditions





The CERV comes standard with EnOcean Wireless Communication, a low power protocol for interaction with local devices (902MHz). Wireless range can be up to 300m in open air and up to 30m inside buildings (depending on interfering materials). Maximum 18 wireless devices.



#### Remote Ventilation Switch

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- Remote Switches trigger fresh air ventilation
- Individually configurable for CFM, zone, and length
- Ideal for bathroom & kitchen venting
- Available in many colors



#### Active Circuit Transmitter

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- Monitors circuit for activity, transmits status
- Triggers Ventilation, Heating, Cooling, etc. like auxiliary input
- Individually configurable for CFM, zone, and length
- Ideal for kitchen vent hoods



#### Remote Sensors

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- Temperature, T & RH, T & RH & CO2 options available
- Remote measurement and control for bedrooms & bathrooms
- Trigger ventilation in bathrooms with smart RH monitoring
- Solar powered, no batteries required!



#### Window/Door sensor

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- Want the windows open on a nice day? Opening the windows automatically tells the CERV to go into standby mode.
- May also be used to trigger ventilation, heating or cooling
- Solar powered, no batteries required!



#### Motion Sensor

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- Trigger ventilation in bathrooms automatically when motion is detected
- Individually configurable for CFM, zone, and length
- May also be used to trigger other CERV modes
- Solar powered, no batteries required!



#### Wireless Relay

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- On/Off control like auxiliary output
- Can be used for GEO-Boost, duct heater, etc.
- 24VAC or 120-277VAC options available



#### CERV-IR Interface Relay (Thermostat Controller / 4 Channel Output)

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- Wirelessly manage heat pumps, furnace, geothermal, etc.
- CERV Smart control determines most efficient operating modes
- Also configurable as a 4 channel NO/COM/NC relay expansion
- Control zone dampers, GEO-Boost, duct heater, etc.



#### CERV-RC Infrared Ductless Minisplit Controller

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- Wirelessly control ductless minisplit heads around your home
- CERV Smart control determines most efficient operating modes
- Easy setup with no wiring! Place in the same room as the ductless unit and plug in!



#### Wireless CERV Controller

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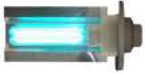
- Remotely monitor and control the CERV in your home
- Great for difficult to access CERV installations
- Included base for desk or wall mounting





## Expanded Control and Capabilities

### CERV-UV: Ultraviolet Air Purification



- Reduces the probability of airborne disease transmission
- 18W UVGI light source that produces broadband 250-260nm UV-C without ozone production.
- 5W of UVGI for a single pass kill efficiency of 85%
- UVGI radiation disrupts genetic material in microorganisms, providing an additional layer of protection to the health of your home to efficiently destroy microbes in the air.

### GEO-Boost Ground Loop Heat Exchanger



- Pre-heating and pre-cooling for the CERV
- Boosts capacity and efficiency
- Smart algorithms activate when beneficial

### Zone Damper Control



- Optimize your home's air delivery system
- Targeted pollutant removal from areas
- Pairs well with wireless ventilation switches
- Supply fresh air to areas with greatest need

### I/O Expansion Board



- Adds 6 dry contact/24VAC outputs
- Adds 3 dry contact/24VAC inputs
- Control external heating, cooling, ventilation, moisture control, GEO-Boost, and more!
- Simple installation and configuration

### Inline Duct Heater



- Best for backup heat in climates with low loads
- 1kW, 2.5kW, and 5kW versions available
- Installs easily with standard ductwork

### Duct Silencer



- Significantly reduces fan/duct noise
- Easy installation
- Great for large homes with extensive ductwork requiring high airflow

### Specialty Filters



- 10" x 20" x 1" MERV 13 filters for fresh air and return
- Optional Carbon style for smoke and odor protection
- Optional VOC and odor absorbing filters



1-773-492-1893



Build Equinox's 100% solar powered facility  
Urbana, IL

