OXYGEN8

PASSIVE HOUSE

Oxygen8 Certified Solutions

Who We Are

Oxygen8 is reinventing how buildings provide healthy and comfortable air in an energy efficient way. We work to enhance living and working environments with 100% fresh, filtered air using smart technology for maximum comfort and value.

[ox·y·gen·ate]

Nothing is more refreshing and essential to the human body than oxygen, which happens to be the eighth element in the periodic table. We oxygenate businesses, classrooms, senior care facilities and other buildings with 100% fresh air so people can work, live and breathe in a safe and comfortable environment.

Why We Do What We Do

To Create Healthy Indoor Environments

People are getting sick while working in offices, learning in classrooms and convalescing in senior care facilities. Traditional centralized HVAC systems that recirculate air without proper filtration and humidity control are the root cause of poor IAQ. To prevent the transmission of bacteria and viruses, improved HVAC systems must provide dedicated outdoor air and eliminate recirculation, have small zoned ventilation systems, include filtration, control humidity levels and used fixed-plate ERV technology that eliminates contaminant cross-over between outside and exhaust streams.

To Move Toward Building Electrification

To reduce greenhouse gases, many North American cities are moving toward net-zero energy buildings over the next decade, which will drive demand for all-electric HVAC systems and low energy technologies. We are here to meet that demand with our all-electric heating and cooling solutions.

For Better Building Design

Super-insulated buildings significantly reduce heating requirements, while climate change and developers' desires for large amounts of glazing will increase cooling needs. The integration of VRV with ERV helps to reduce energy consumption and meet ventilation requirements.

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Passive House Principles

Passive House is considered the most stringent voluntary energy-based standard in the design and construction industry. With the Passive House building standard, buildings consume 90% less heating and cooling than conventional buildings. The Passive House building standard is the only internationally recognized, proven, and science-based energy standard in construction that delivers this level of performance.

There are 5 key principles that are central to Passive House design:

1. Heat & Energy Recovery Ventilation

Since Passive House buildings are airtight, a mechanical ventilation system is needed to bring fresh air in and exhaust built-up contaminants and moisture. A Passive House ventilation system uses a heat or energy recovery ventilator (H/ERV) to continuously remove stale or moist air and deliver fresh air.

2. Thermal Insulation

Utilize efficient insulation materials and techniques to minimize heat loss and gain through the building envelop. For example, thick and insulated walls. Passive House buildings seek to achieve a low heat transfer coefficient (U-Value <0.15 W/m^2k).

3. High Performance Glazing

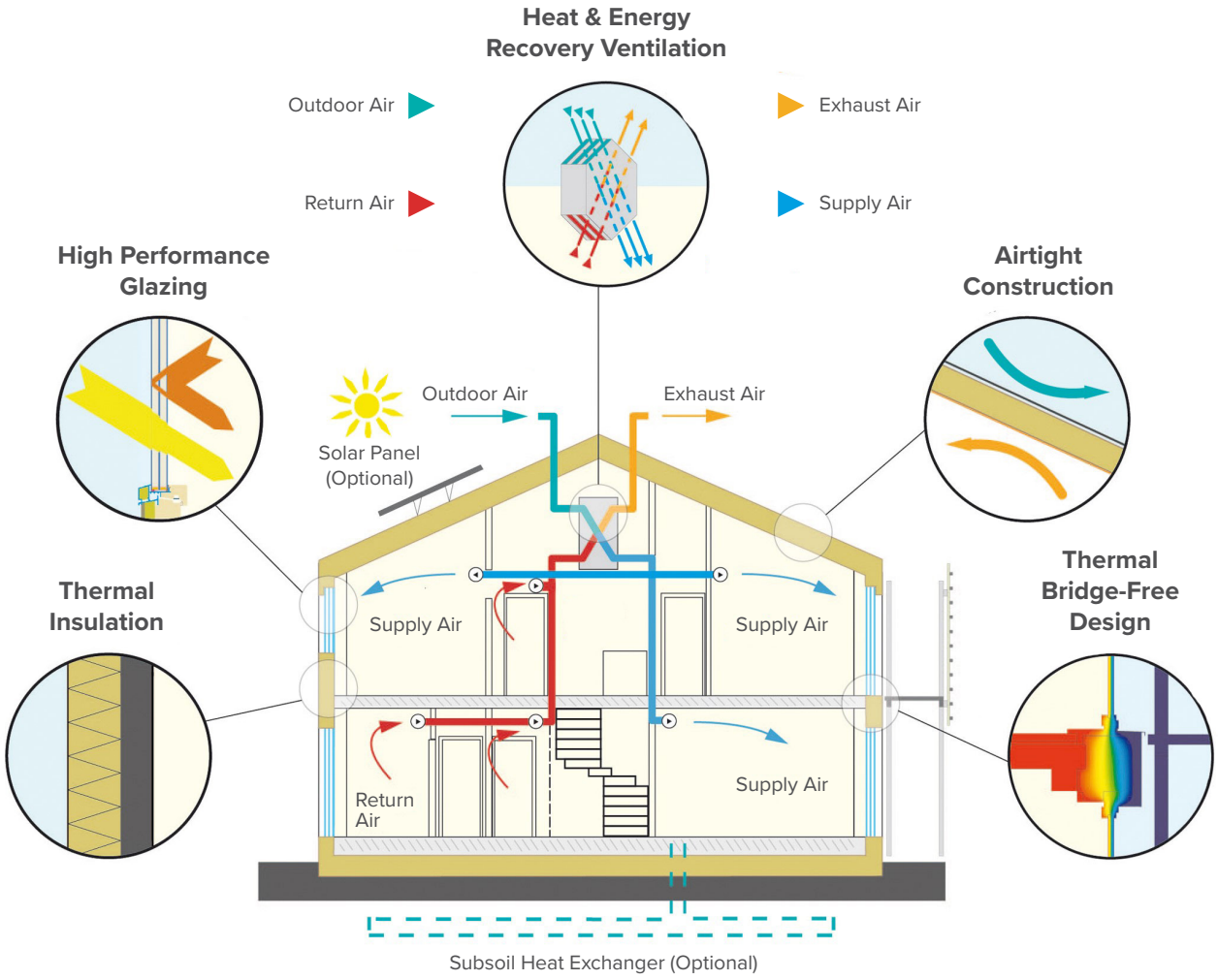
Glazing systems (windows and doors) can play a significant role when it comes to contributing to space-heating energy. Passive House buildings employ double or triple glazed windows, filled with Argon or Krypton and have a low heat transfer coefficient (U-Value <0.80 W/m^2k), as well as a low SHGC (g-value <0.5).

4. Airtight Construction

Implementing airtight building practices to prevent unintended air leakage (through blower door tests) and a maximum of 0.6 air changes per hour @ 50 Pascals pressure (ACH50) help maintain a consistent indoor climate.

5. Thermal Bridge-Free Design

Eliminating building envelope thermal bridges at edges, corners, connections, and penetrations help enhance the overall energy efficiency.

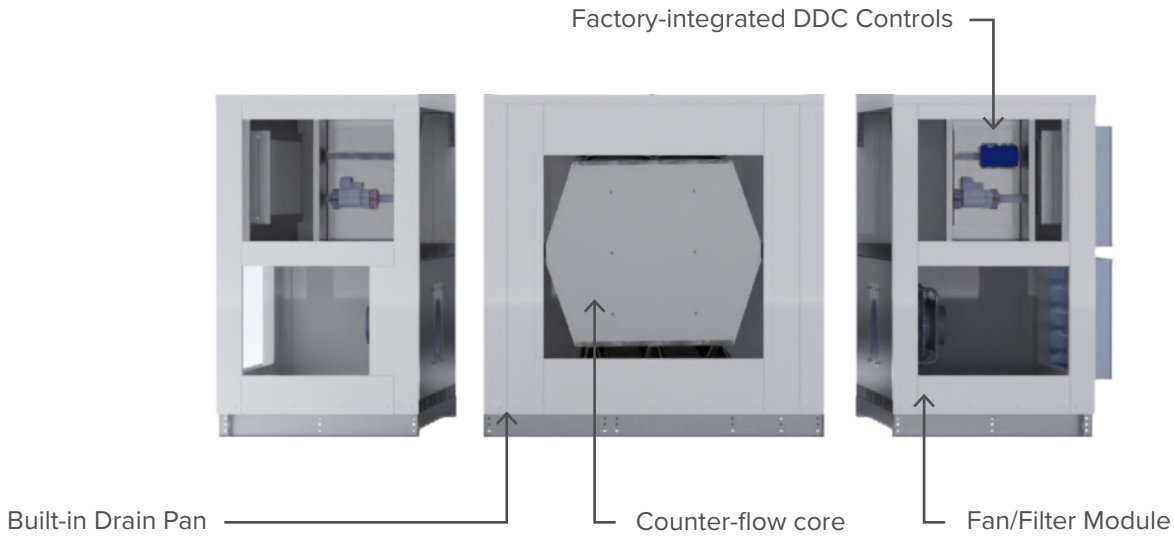


Space Heating Demand	Not to exceed **15 kWh** annually or **10W** (peak demand) per square meter of usable living space.
Space Cooling Demand	Roughly matches the heat demand with an additional, climate-dependent allowance for dehumidification.
Primary Energy Demand	Not to exceed **120 kWh** annually for all domestic applications (heating, cooling, hot water, and domestic electricity) per square meter of usable living space.
Airtightness	Maximum of **0.6 air changes** per hour at 0.20 in.wc pressure (as verified with an onsite pressure test in both pressurized and depressurized states).
Thermal Comfort	Must be met for all living areas year-round with not more than 10% of the hours in any given year over **77°F.**

Source: https://passiv.de/en/02_informations/02_passive-house-requirements/02_passive-house-requirements.htm

Ventum+ ERV

for Centralized Applications



Passive House Component ID	Model	Dimensions (L x W x H**) in.	Passive House Certified Airflow Range* Min cfm	Passive House Certified Airflow Range* Max cfm	Moisture Recovery %	Available External Pressure in.wc	Specific Fan Power W/cfm @ Max Airflow W/cfm @ Min Airflow	Heat Recovery % @ Max Airflow % @ Min Airflow	Heat Recovery Residential % @ Max Airflow % @ Min Airflow
2272vl03	**V20**	122 x 56.6 x 56	495	1300	65	0.89	0.748 0.765	76 83	80 88
2273vl03	**V25**	117.5 x 56.6 x 62	660	1750	65	0.96	0.748 0.646	75 82	80 87
2274vl03	**V30**	117.5 x 69.8 x 66	854	2235	65	1.03	0.714 0.748	76 83	81 87
2275vl03	**V40**	122 x 69.8 x 74	1100	2690	65	1.06	0.629 0.646	76 82	81 87
2276vl03	**V50**	131 x 69.8 x 84	1300	3600	65	1.12	0.697 0.663	76 83	80 87
2277vl03	**V60**	131 x 85.9 x 86	1700	4550	65	1.20	0.697 0.612	76 83	81 87
2278vl03	**V80**	138.5 x 85.9 x 100	2148	5900	65	1.24	0.748 0.765	76 84	81 88
2279vl03	**V100**	138.5 x 102.1 x 100	2700	6350	65	1.28	0.748 0.748	77 84	82 88

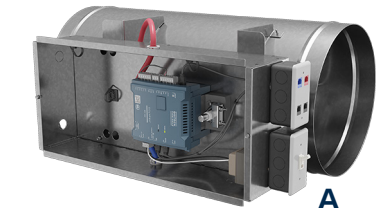
*The airflow range indicated above is for Passive House Certification only, and is different from our standard selection airflows.

**Optional accessories including hydronic, DX, and Hot Gas Reheat can be added, please contact our Applications Team at applications@oxygen8.ca for more details.

Click here or scan the QR code to view Oxygen8's available solutions on the Passive House database.

Modul8 Smart Air Control Valve

for Centralized Applications



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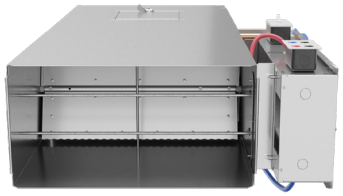

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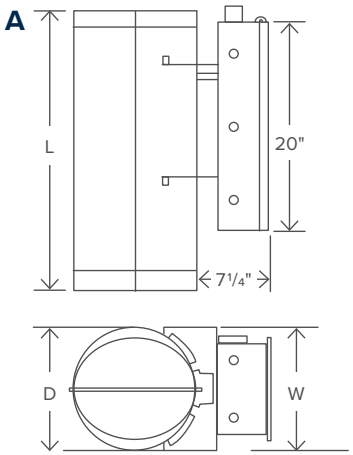
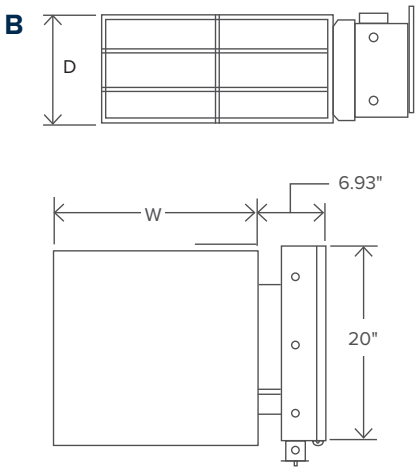




Modul8 – Round

Unit	Airflow Range				Dimensions			Flange		
	Max Flow cfm	Max Ultra Quiet Flow cfm	Min Flow cfm	Flow Sensor Inlet Area sq. ft.	D in	L in	W in	B/C in	O.D in	Wt. lbs
4	205	147	0.49	0.08	3.875	10	5	5.25	6	10
5	325	234	0.78	0.13	4.875	11.5	6	6.25	7	12
6	490	350	1.20	0.20	5.875	14.81	7.625	7.25	8	15
8	875	630	2.0	0.35	7.875	16	10	9.25	10	20
12	1965	1415	5.0	0.79	11.875	26.81	12	13.25	14	25
16	3490	2515	11.0	1.40	15.875	27.50	15.875	17.75	19	34

Modul8 – Rectangular

Unit	Airflow Range				Dimensions			
	Max Flow cfm	Max Ultra Quiet Flow cfm	Min Flow cfm	Flow Sensor Inlet Area sq. ft.	D in	L in	W in	Wt. lbs
6 x 16	1665	1199	4	0.67	6	16	14	20
10 x 15	2600	1875	8	1.04	10	19	15	35

Controls Communication Options

Subnet Wiring: Allure Series sensors
Communications Wiring (BACnet IP): Wired & Wireless Connections
Power Connection: 208V/1 or 24V AC

Materials (Within Air Stream)

Standard Construction
20-gauge galvanized steel casing
18-gauge galvanized steel casing
Stainless steel pitot tubes
Advanced low-leak aerospace damper gasket

Flanges (Round models only)
Complies with SMACNA specifications
Stainless steel only

Factory installed and calibrated patented airflow sensing system

Patented variable orifice plate technology

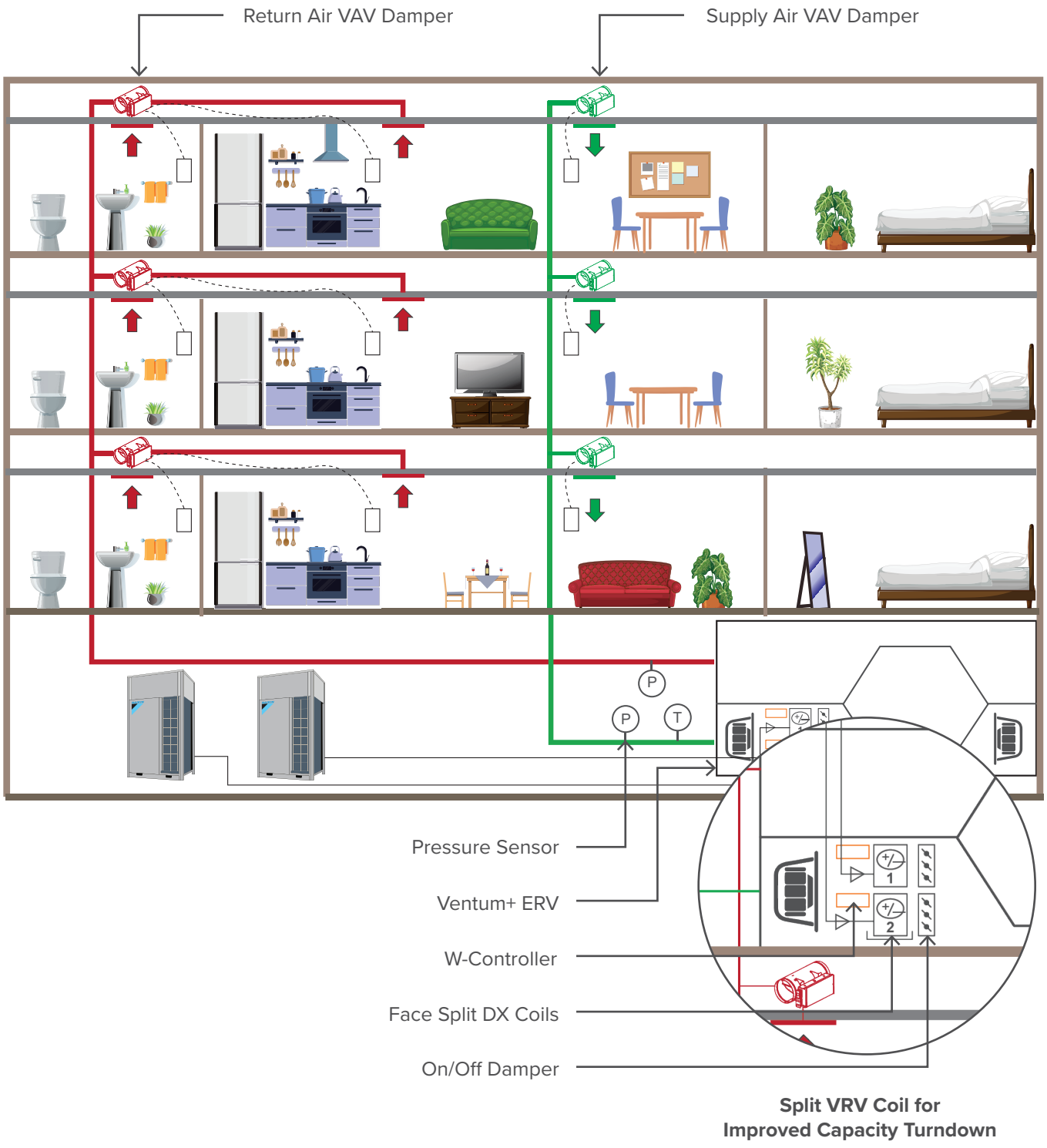
Flow Measurement*
±4% of actual fow from 2500 fpm to 150 fpm
±6 fpm from 150 fpm to 6 fpm

Airflow Measurement
Pneumatic tubing – UL 94 rated
Sensor Type A – Pitot
Sensor Type B – Orifice (Round models only)

Coil Options
Rectangular dampers have the option for hydronic coils. Contact applications@oxygen8.ca for more information.

Centralized ERV with VRV Integration

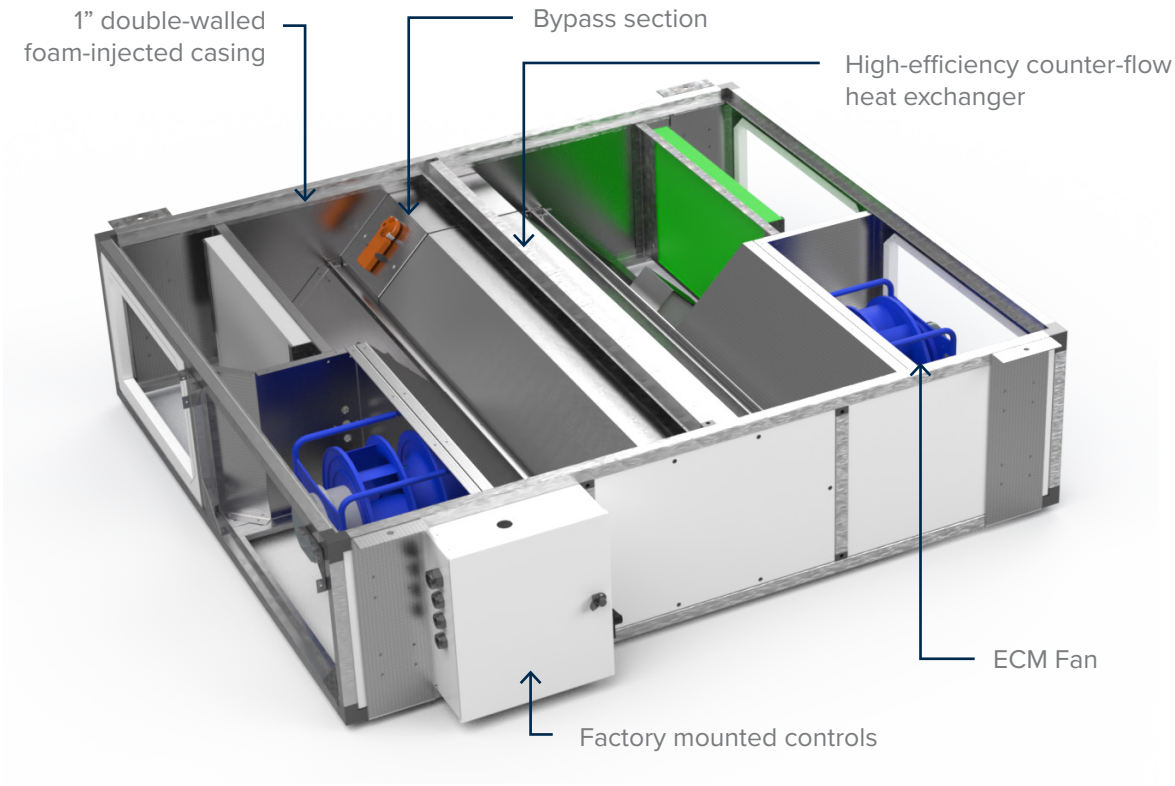
for Multi-Unit Residential Applications



Split VRV Coil for Improved Capacity Turndown

Ventum ERV

for Semi-Decentralized Applications



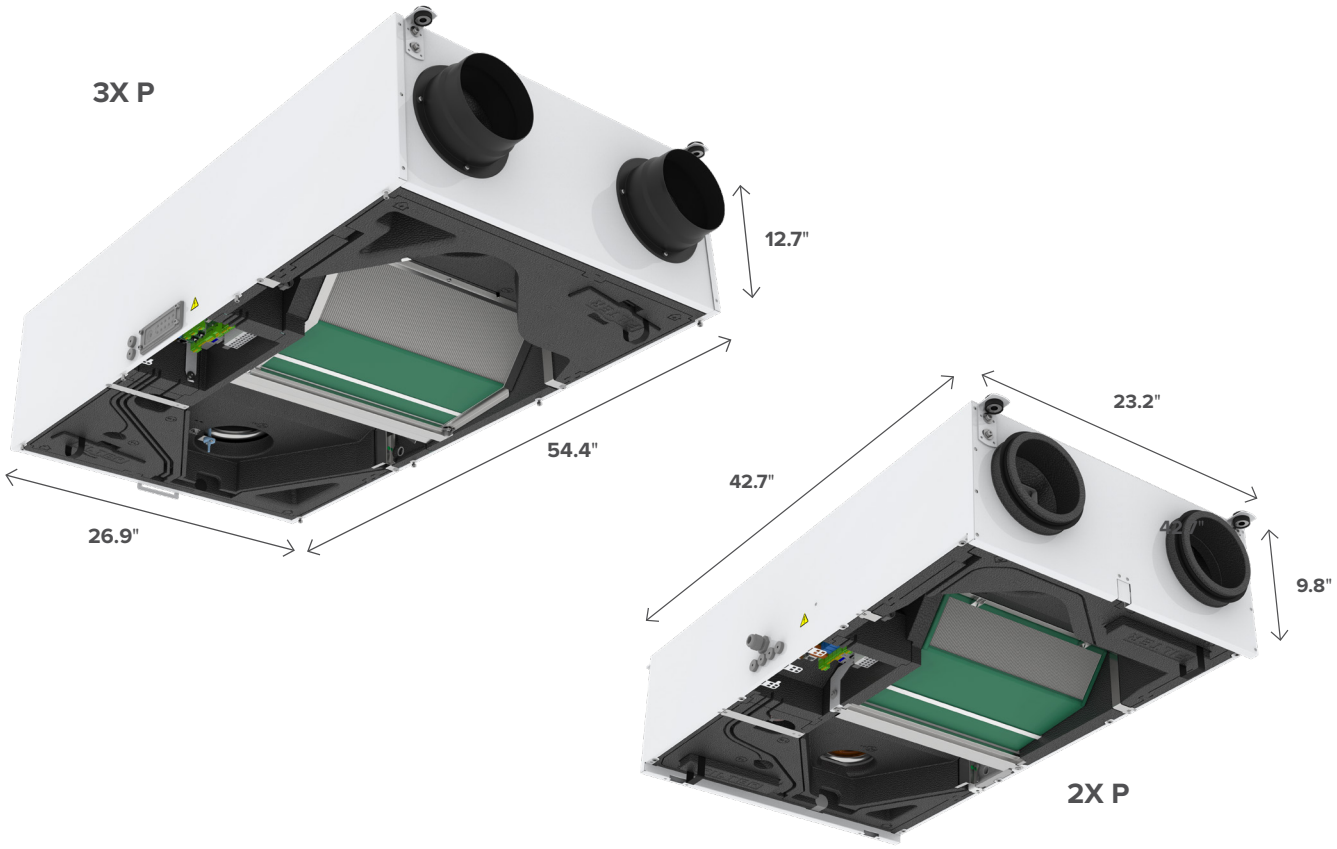
Passive House Component ID	Model	Dimensions (L x W x H**) in.	Passive House Certified Airflow Range*		Ext. Pressure	Specific Fan Power	Heat Recovery	Heat Recovery Residential
			Min cfm	Max cfm	in.wc	W/cfm @ Min Airflow W/cfm @ Max Airflow	% @ Min Airflow % @ Max Airflow	
2298vl03	**H10**	70 x 62.5 x 18	306	560	0.88	0.65 0.65	76 81	81 86
2299vl03	**H15**	78 x 62.5 x 21	353	750	0.95	0.75	76	81
2300vl03	**H20**	78 x 77.5 x 21	424	1035	1.04	0.72 0.75	76 82	81 87
2301vl03	**H30**	102 x 77.5 x 32	871	1295	1.09	0.61 0.63	76 79	81 84

*The airflow range indicated above is for Passive House Certification only, and is different from our standard selection airflows.

**Optional accessories including hydronic, DX, and Hot Gas Reheat can be added, please contact our Applications Team at applications@oxygen8.ca for more details.

Salda 2X/3X P H/ERV

for In-Suite Ventilation Applications



HRV Unit Performance

Model	Size (L x W x H) in.	Passive House Certified Airflow Range (cfm)	Heat Recovery Rate (%)	Orientation	Specific Fan Power (W/cfm)
2X P	42.7 x 23.2 x 9.8	33 – 82	84	Horizontal	0.63
3X P	54.4 x 26.9 x 12.7	61 – 146	85	Horizontal	0.63

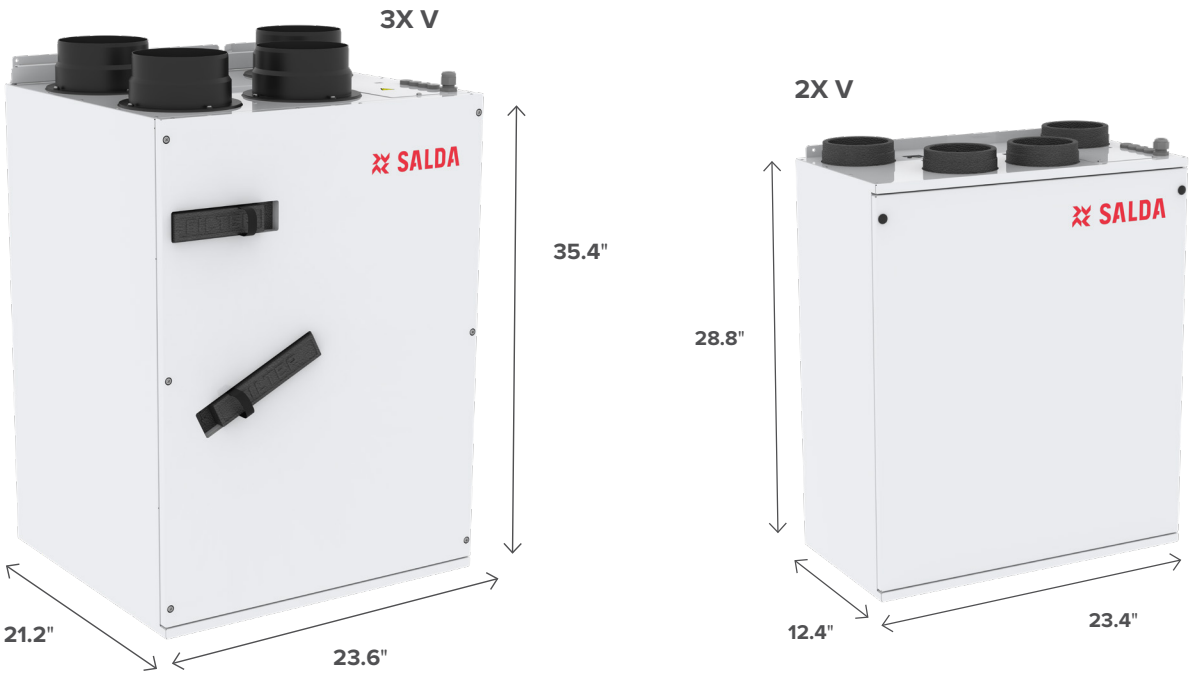
*Unit requires condensate connection.

ERV Unit Performance

Model	Size (L x W x H) in.	Passive House Certified Airflow Range (cfm)	Heat Recovery Rate (%)	Orientation	Specific Fan Power (W/cfm)
2X P	42.7 x 23.2 x 9.8	48 – 76	82	Horizontal	0.64
3X P	54.4 x 26.9 x 12.7	61 – 154	84	Horizontal	0.51

Salda 2X/3X V H/ERV

for In-Suite Ventilation Applications



HRV Unit Performance

Model	Size (L x W x H) in.	Passive House Certified Airflow Range (cfm)	Heat Recovery Rate (%)	Orientation	Specific Fan Power (W/cfm)
2X V	23.4 x 12.4 x 28.8	27 – 68	82	Vertical	0.63
3X V	23.6 x 21.2 x 35.4	63 – 160	81	Vertical	0.51

*Unit requires condensate connection.

ERV Unit Performance

Model	Size (L x W x H) in.	Passive House Certified Airflow Range (cfm)	Heat Recovery Rate (%)	Orientation	Specific Fan Power (W/cfm)
2X V	23.4 x 12.4 x 28.8	27 – 68	80	Vertical	0.66
3X V	23.6 x 21.2 x 35.4	63 – 168	82	Vertical	0.51

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