

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

INDEX

COMPONENTS

BESB LOW ENERGY FAN.....	12-9
EFV FAN	12-9
MEC 18 MECHANICAL EXHAUST CONTROL	12-9
INTRODUCTION.....	12-2 – 12-5
MBESV — MODULATING BUILDING EXHAUST SYSTEM	
KITCHENS AND BATHROOMS.....	12-8
MDVS — MECHANICAL DRYER VENTING SYSTEM	
CENTRAL CLOTHES DRYER FACILITY	12-7
MULTI-STOREY CLOTHES DRYER.....	12-6

This section contains product and technical information only.

For additional information and product pricing please contact your local ECCO Supply Sales Branch.

ECCO is proud to be a member of:



ASHRAE
American Society of
Heating, Refrigerating, and
Air-Conditioning Engineers, Inc.
www.ashrae.org



HRAI
Heating, Refrigeration and
Air Conditioning
Institute of Canada
www.hrai.ca



HARDI
Heating, Airconditioning &
Refrigeration Distributors
International
www.hardinet.org



SMACNA
Sheet Metal and Air
Conditioning Contractors'
National Association
www.smacna.org



SPIDA
Spiral Duct
Manufacturers
Association
www.spida.org



CIPH
Canadian Institute
of Plumbing &
Heating
www.ciph.com

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

INTRODUCTION

ENERVEX — MADE BY EXPERIENCE

ENERVEX combines quality components, superior technology and experienced personnel to deliver a system that is economical, environmentally sustainable, aesthetically pleasing, and reliable. In addition, their custom engineering and space saving design ensure that the project meets code requirements, as well as the high standards of today's builders. ENERVEX doesn't build a one-size-fits-all venting system. They understand that each project is unique and their three-step process allows them to design a venting system that meets the specific requirements of a given job.

The ENERVEX Performance Guarantee

Because ENERVEX designs the entire venting system, they take full responsibility for its operation. Contact your ECCO Supply sales representative for details.

The FanCalc Difference

One of the many things that set ENERVEX apart from their competitors is their proprietary design software, FanCalc. FanCalc allows their engineers to quickly and accurately design a venting system because it contains extensive clothes dryer data, such as operating and exhaust requirements, exhaust temperatures, efficiency, ducts with k-values, resistance factors, insulation factors and more. Instead of spending days or weeks analyzing data, ENERVEX's engineers can enter the information into FanCalc and receive a report that provides the appropriate sizing information, code violation warnings and even design alternatives.



1. Pre-Sales Analysis

This phase allows EnerVex to gather requirements and create a customized sizing report.



2. System Design

Using the FanCalc software, engineers design a system that takes into consideration proper vent type application, operating temperatures, pressure losses and the risk of condensation. It also provides specific wiring diagrams.



3. Engineering and Installation Support

Every ENERVEX system comes complete with job-specific AutoCAD installation instructions and wiring diagrams. Engineering support teams have access to these files and are available to answer any questions that come up during installation.

ENERVEX and LEED

ENERVEX's systems qualify for LEED points under the Energy & Atmosphere (EA), Materials & Resources (MR), Indoor Environmental Quality (EQ) and Innovation & Design Process (ID) sections. ENERVEX has actively promoted low-energy installations, energy savings, indoor air quality and recycling for decades – long before it became "in". For years ENERVEX has been involved in the European legislation processes and has been a member of United States Green Building Council (USGBC) since 2005. Unlike most manufacturers, they didn't have to come up with "new" GREEN solutions – they have made them for decades!



– E.&O.E. – All Prices F.O.B. Our Warehouse – Subject to Change Without Notice – All Taxes Extra –

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

INTRODUCTION (cont'd)

ENERVEX MAKES IT EASY AND ECONOMICAL TO BE GREEN

One of the biggest sources of energy loss in vertical subdivisions (apartments, condominiums, mixed-use buildings) is the exhaust system that ventilates the dryers, kitchens and baths. Regardless of how many appliances are in use, the exhaust system operates 24 hours a day.

ENERVEX offers an alternative to 24/7 exhaust operation that's both economical and "green." Their demand-controlled ventilation system adjusts the exhaust rate to meet the current demands, reducing operating costs and providing significant energy savings each year.

Energy Savings for Every Type of Building

No two buildings have exactly the same energy usage, which makes ENERVEX's demand-controlled ventilation system the perfect solution. Apartments and hotels have high energy usage in the morning and the evening, while sporting arenas have low energy usage for several days and then high output over a short period of time. Rather than operate continuously, ENERVEX senses when the energy output needs to increase and adjusts its operation accordingly.

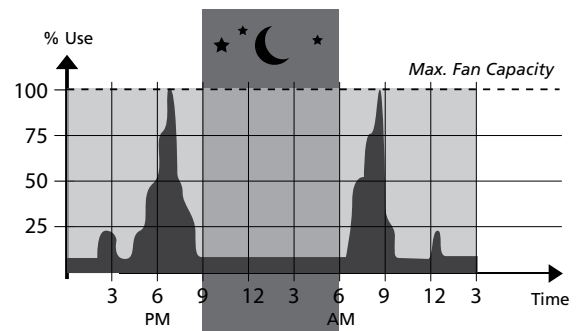
HOW DEMAND-CONTROLLED VENTILATION WORKS

In a vertical subdivision (apartment, condominium, mixed-use building), the traditional exhaust system must operate at full speed 24/7, regardless of how many appliances are running at any given time. With demand-controlled ventilation, the system senses when no appliances are running and operates at a very low speed. Once the appliance starts, the internal appliance fan creates pressure inside the common duct. The system senses this pressure and begins increasing ventilation speed.

The illustration to the right describes the components and operation of a demand-controlled ventilation system.

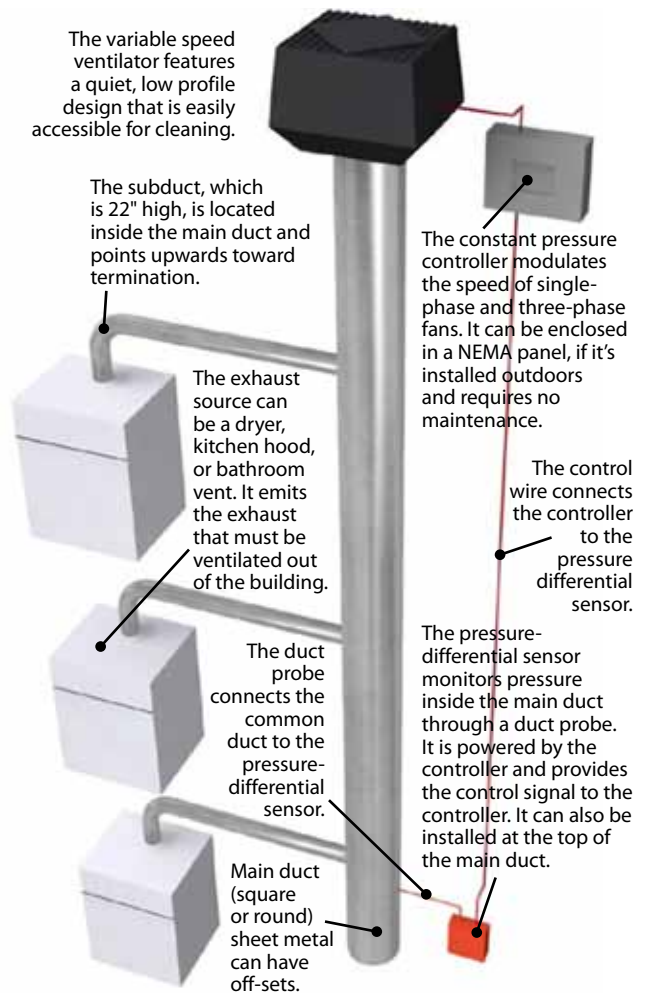
Annual Energy Cost Savings

Demand-controlled ventilation provides substantial operating savings over a constant air volume system by reducing fan energy consumption by up to 90%. As a result, the cost of conditioned air being exhausted is reduced by up to 80%.



■ Most ventilation systems run at full speed regardless of the demand.

■ Demand-Controlled Ventilation adjusts to meet the needs of the system.



ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

INTRODUCTION (cont'd)

SAVINGS AND SUSTAINABILITY

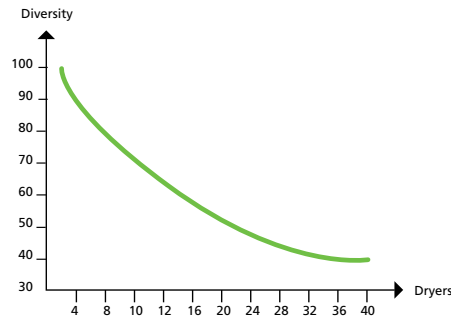
Think you have to spend a lot of money and retrofit your building just to be "green?" Think again. ENERVEX has been offering sustainable solutions long before it became trendy to do so. Consider the benefits of a demand-controlled ventilation system.

Economical

Over a 15-year period a typical demand-controlled ventilation system serving eight dryers costs 55% less to operate than a fixed speed system. In addition it saves 85% of the cost of exhausting conditioned air.

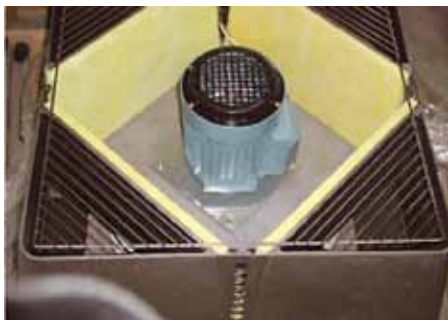
Material and Labour Savings

A demand-controlled exhaust system can take 100% advantage of diversity, reducing duct sizes and thus material and labour. In addition multiple main ducts can be exhausted by a single fan.



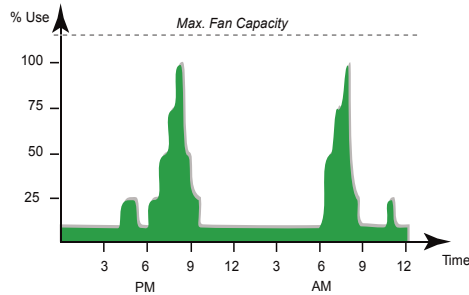
Reliable

With ENERVEX's variable speed, direct-drive EFV exhaust fans, broken belts are a thing of the past. Other than periodic duct and fan cleaning, no maintenance is required.



Energy Savings

A typical dryer, kitchen, or bathroom exhaust system operates less than 30% of the day. A demand-controlled exhaust system converts this into energy savings of 85%.



Space Saving

Using diversity saves floor space as smaller ducts add building open space. One square foot per floor in a 20 story building can save as much as \$5-10,000 per duct riser.

Quiet Performance

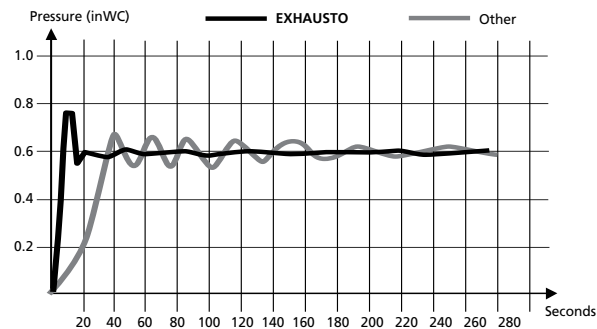
A well-balanced demand-controlled system eliminates noise from speed variations or from fans running at full speed 24/7.

Aesthetics

Architectural discharge vents, which collect grease, lint and dirt, are located on the wall, which makes them very difficult to clean. Because the demand-controlled system discharges on the roof, it eliminates this problem.

Unmatched Performance

Not only is the ENERVEX system fast in response to demand changes, it's also able to maintain a +/-2% accuracy from setpoint. Alternative solutions only achieve a +/-20% accuracy, so their savings are over 20% less.



ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

INTRODUCTION *(cont'd)*

PERFORMANCE AND SAVINGS

Performance Documented by Independent Testing

In recent years, ENERVEX has participated in a major development project initiated and financed by Enbridge Gas that has tested several dryer issues, including the effects of using the MDVS system vs. fixed speed fans. The project was managed by National Gas Technologies Center (NGTC) in Montreal. Based on more than 35,000 hours of monitoring some of the results were:

- Using an MDVS control system has limited impact on drying time but can contribute to a decrease in dryer's energy consumption by 3% while preventing up to 10 times more conditioned air than necessary from exhausting to the outside.
- By using an MDVS system, which controls the speed depending on the number of dryers in use, the loss of conditioned air can be reduced from 288,000 cu.ft. (7,000 m³) per day per dryer to 40,000 cu.ft. (1,200 m³) per day per dryer in a typical 8-dryer system.
- When a common exhaust strategy is retained, additional electrical savings can be achieved through the use of a MDVS system. Electricity savings can reach 8,800 kWh/year.
- A rule of thumb formula has been developed to estimate heating and cooling savings based on cooling degree days and heating degree days.

Renovation

ENERVEX's MDVS and MBESV systems are extremely suitable for retrofitting.

Conditioned Air Savings (cu.ft. per day per dryer)

(Based on 8-dryer dryer system located in Greater Toronto.)

LAUNDRY UTILIZATION PROFILE			CONDITIONED AIR LOSS TO THE OUTSIDE (CU.FT. PER DAY PER DRYER)		
% DRYERS IN OPERATION	LAUNDRY PROFILE (% PER DAY)	LAUNDRY PROFILE (MIN. PER DAY)	MDVS	FIXED SPEED FAN	SAVINGS
100	1.5	22	2,649	2,896	247
75	3.9	56	5,050	8,652	3,602
50	8.6	124	7,451	21,613	14,161
25	16.7	240	10,559	43,190	32,631
0	69.3	998	14,091	211,678	197,587
TOTAL	100	1,440	39,800	288,029	248,229

Annual Energy Cost Associated with Dryer Type and Exhaust System

(Based on 8-dryer dryer system located in Greater Toronto.)

In US Dollars

	MULTIPLE DRYER VENTING SINGLE SPEED FAN SYSTEM	MULTIPLE DRYER VENTING VARIABLE SPEED FAN SYSTEM	SAVINGS
Loss of Conditioned Air	4,764.00	675.00	4,089.00
Fan Operation	1,105.00	127.00	978.00
TOTAL	5,869.00	802.00	5,067.00

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

MDVS — MECHANICAL DRYER VENTING SYSTEM

VENTILATION: MULTI-STOREY CLOTHES DRYER

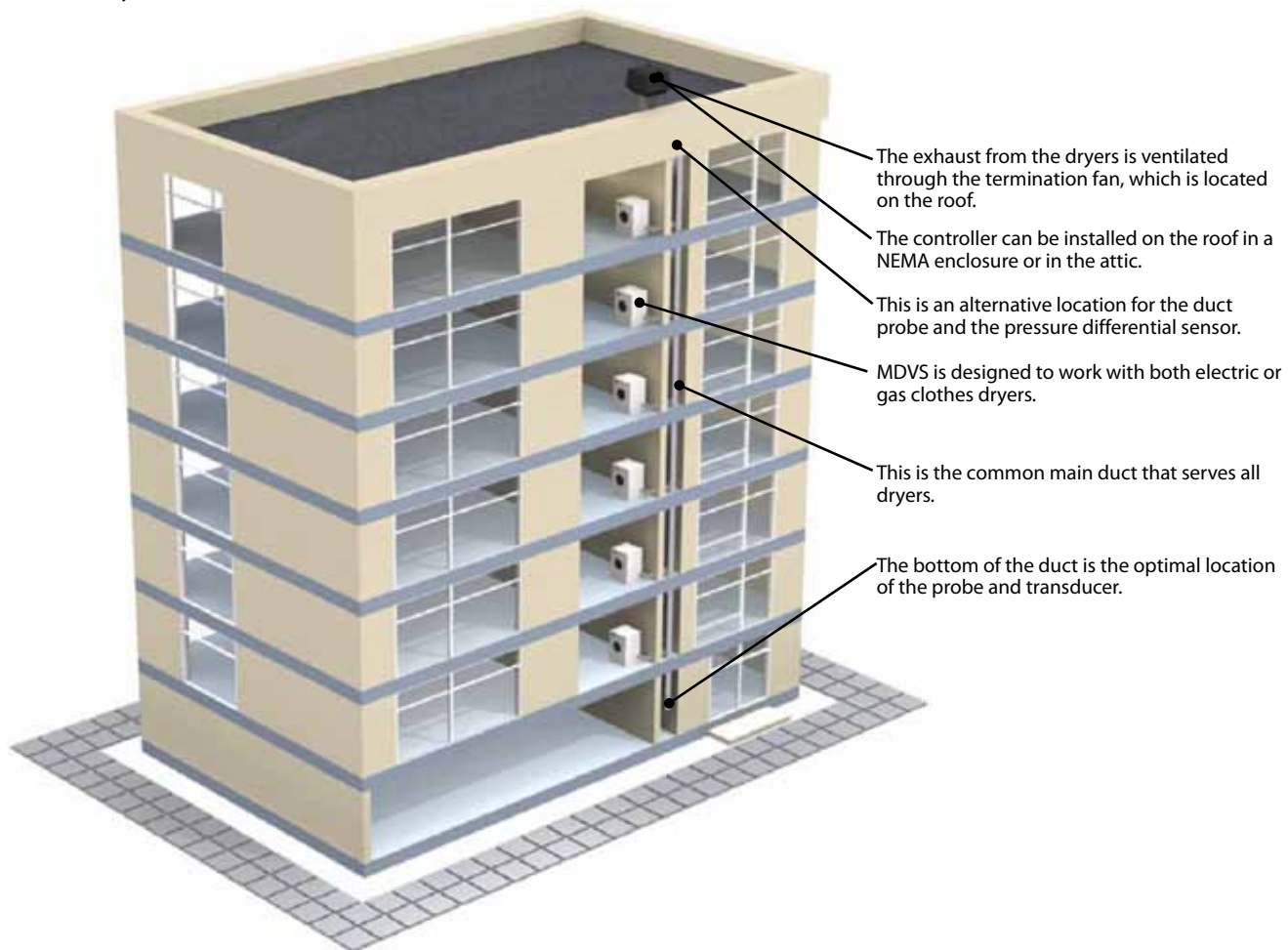
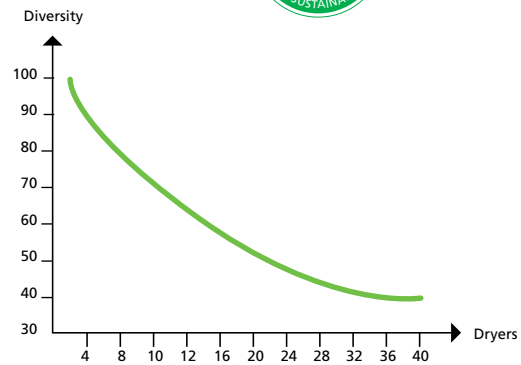
Application

The Mechanical Dryer Venting System (MDVS) is a demand-controlled ventilation system designed specifically for multi-storey buildings that have dryers on each level. The illustration below describes the system and its components.

Diversity

In applications with multiple dryers, it is possible to use diversity factors, which in statistics are a representation of how many dryers are likely to be operating at a given time. Using diversity factors will reduce main duct sizes but may not reduce the fan size and the amount of air exhausted. Local codes must be consulted to determine whether this is possible.

ENERVEX's demand-controlled ventilation systems can take full advantage of diversity. The fan may be larger than necessary but it will still only exhaust based on demand.



– E.&O.E. – All Prices F.O.B. Our Warehouse – Subject to Change Without Notice – All Taxes Extra –

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

MDVS — MECHANICAL DRYER VENTING SYSTEM (cont'd)

VENTILATION: CENTRAL CLOTHES DRYER FACILITY

Application

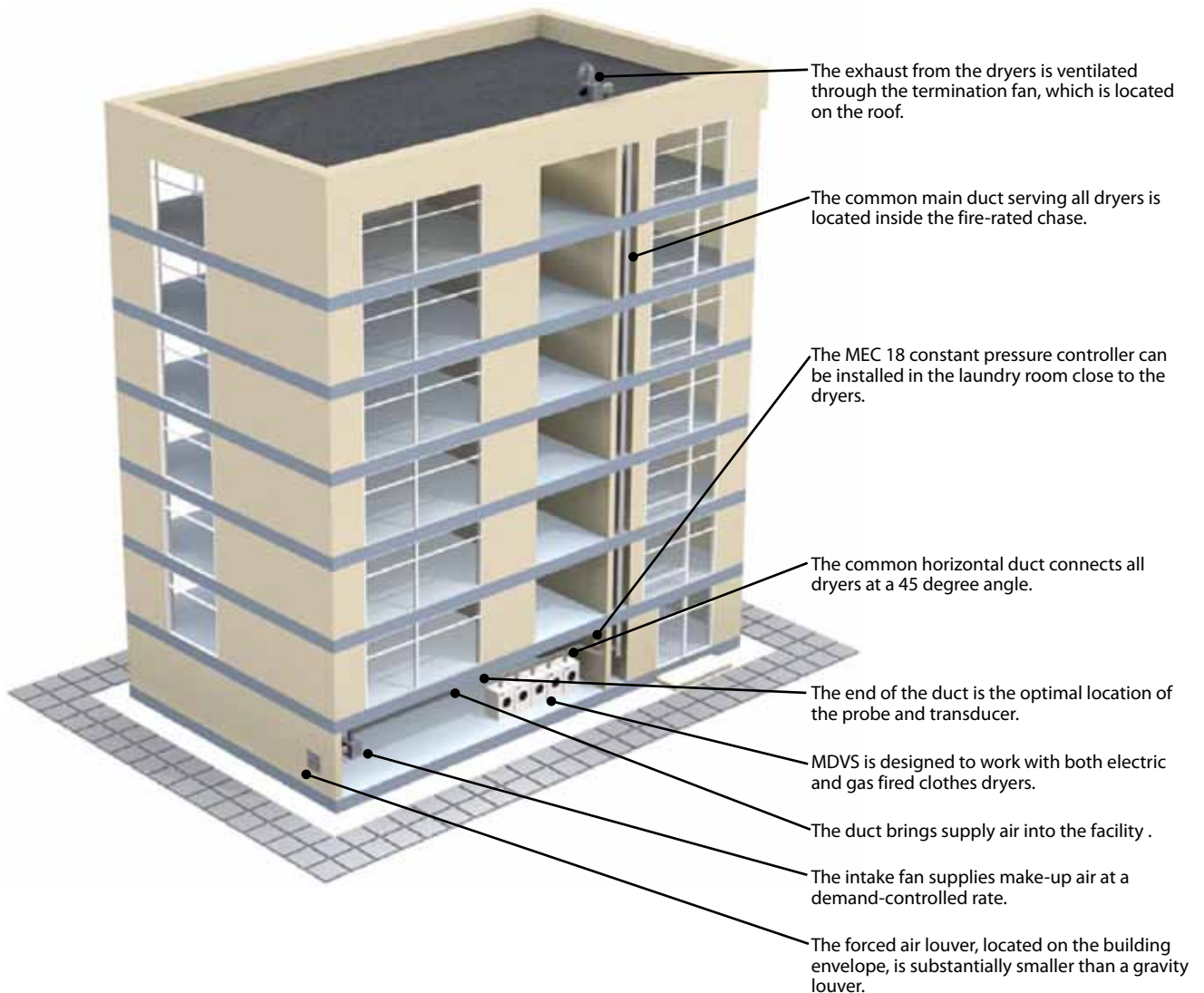
The Mechanical Dryer Venting System (MDVS) is a demand-controlled ventilation system designed specifically for multi-storey buildings that have a common dryer area, rather than dryers on each level. The illustration below describes the system and its components.



Supply of Make-up air

In a laundry facility, traditional make-up air supply systems rely on gravity to supply outside air, regardless of how many appliances are running at any given time. With a demand-controlled make-up air supply, the system senses when no appliances are running and operates at a very low speed, maintaining neutral pressure in the room. Once the appliance starts, it emits exhaust, which drives the room pressure towards negative. The fan senses this pressure and begins increasing air-supply fan speed.

ENERVEX's Modulating Air Supply System (MCAS) can be used in conjunction with a MDVS system.



– E.&O.E. – All Prices F.O.B. Our Warehouse – Subject to Change Without Notice – All Taxes Extra –

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

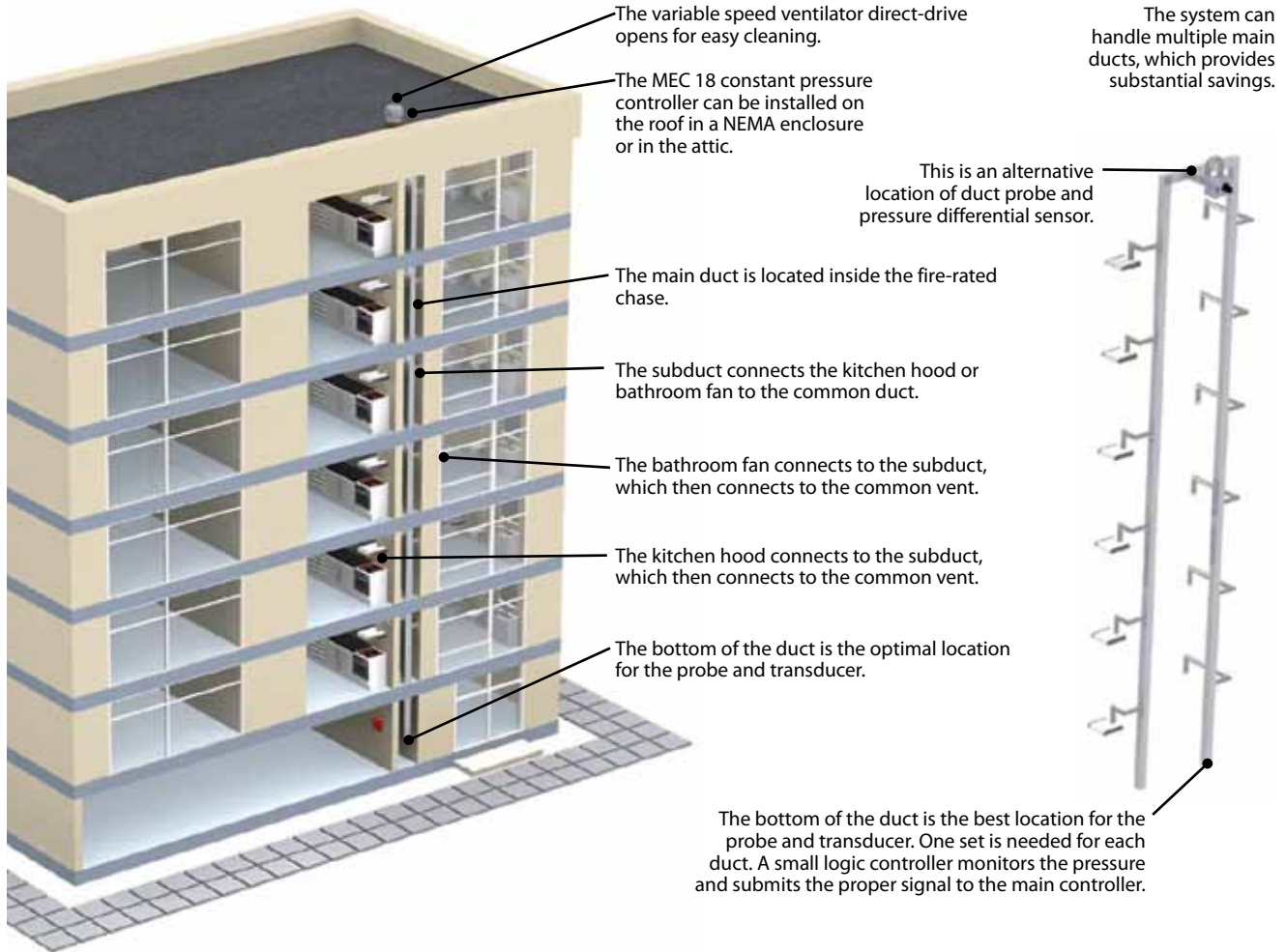
www.enervex.com

MBESV — MODULATING BUILDING EXHAUST SYSTEM

VENTILATION: KITCHENS AND BATHROOMS

Application

The Modulating Building Exhaust System (MBESV) is a demand-controlled ventilation system designed specifically for ventilating kitchen hoods and bathroom fans in multi-storey buildings. The illustration below describes the system and its components.



– E.&O.E. – All Prices F.O.B. Our Warehouse – Subject to Change Without Notice – All Taxes Extra –

ENERVEX DEMAND-CONTROLLED EXHAUST SYSTEMS FOR DRYERS, KITCHENS AND BATHROOMS

www.enervex.com

COMPONENTS

BESB LOW ENERGY FAN

- Compact design
- High efficiency aluminum impeller guarantees EXstream performance
- Made from corrosion resistant material (indoor or outdoor installation)
- Insulated housing and ultra-quiet operation
- Variable-speed class A motor (inverter duty)
- Access door with 180° opening angle and full duct access
- Four sizes available, ETL and ETLc listed



MODEL	POWER SUPPLY VAC	AMPS	MOTOR OUTPUT HP	RPM	WEIGHT (LBS)	DUCT CONNECTIONS (")	MAX CAPACITY CFM
BESB250	1 × 120	5.8	0.5	1600	110	10	1500
	1 × 220-240	2.9		1400			1250
BESB315	3 × 200-240/ 3 × 440-480	3.1/1.7	1	1720	126	12	2400
BESB400		6.5/2.9	2		167	16	4300
BESB500		9.0/4.0	3		227	20	5800

EFV FAN

- Compact design
- High efficiency aluminum impeller guarantees performance
- Made from cast aluminum
- Variable speed Class H motor
- Five sizes available, ETL and ETLc listed



MODEL	POWER SUPPLY VAC	AMPS	MOTOR OUTPUT HP	RPM	WEIGHT (LBS)	DUCT CONNECTIONS (")	MAX CAPACITY CFM
EFV200	1 × 120	1.4	0.15	1600	47	8	600
EFV250		2.9	0.2		60	10	1150
EFV315		5.8	0.5		88	12	2000
EFV400	3 × 200-240/ 3 × 440-480	3.5/1.8	1	1720	127	16	3000
EFV450		6.5/3.6	2		155	16	4000

MEC 18 MECHANICAL EXHAUST CONTROL

- Provides a constant pressure by modulating fan speed
- Used where constant pressure is needed in the exhaust duct for on-demand control
- Offers extremely accurate PID loop for perfect performance
- Easy to operate

POWER SUPPLY VAC	AMPS	OPERATING TEMPERATURE °F (°C)	RANGE OF OPERATION in WC / PA	OUTPUT VAC (VDC)	WEIGHT (LBS)
1 × 120 (60 Hz) 1 × 240 (50-60 Hz)	6.3/3.15	-4 to 104 (-20 to 50)	0-0.6 / 0-150	10-120/20-240 (0-10)	3.0



– E.&O.E. – All Prices F.O.B. Our Warehouse – Subject to Change Without Notice – All Taxes Extra –